



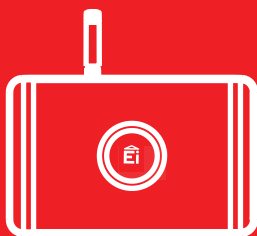
Handybook

8TH EDITION



Home Life Safety

an  Company



Hello.

And welcome to Aico's Handybook, with all the essential information you need to choose, install and maintain domestic home life safety systems, such as Fire and Carbon Monoxide alarms and Environmental Sensors.

Everything you should need is included in the following pages, but our technical support team are always on-hand to answer any questions you might have. Just call them on 01691 664100 – they will be only too happy to help.



TIP

Look out for this icon throughout the Handybook for useful hints and tips

Contents

Standards	5
Alarm Sensor Types	25
Siting	39
Installation	49
Testing & Commissioning	59
Maintenance & Fault Finding	65
Connected Home	77
Accessories & Applications	97
Wiring Diagrams	107
Why Choose Aico?	121

Standards

Keep up to date with the latest legislation.

The standards for domestic fire alarms were revised in May 2019. Here are all the details you need to know.

BS 5839-6:2019+A1:2020

6

Grades

Categories

Table 1 - New Build - Owner Occupied Single Storey

Table 1 - New Build - Owner Occupied 2-3 Storey

Table 1 - New Build/Existing - Rented Single Storey

Table 1 - New Build/Existing - Rented 2-3 Storey

Table 1 - Existing - HMO 1-2 Storey

Table 1 - Existing - HMO 3+ Storey

Table 1 - Existing - Sheltered

Table 1 - Self Catering & Supported Housing

BS EN 50292:2023

18

BS EN 50292:2023 - Priority Areas

19

Other Regulations & Legislation

22



TIP

If in doubt over what to fit, always follow the British Standards

BS 5839-6:2019+A1:2020



BS 5839-6:2019+A1:2020 is the main standard for fire detection/alarm systems in domestic properties. It is applicable across the whole of the UK to:

- Domestic premises
- Existing properties
- New Build

It replaced BS 5839-6:2013 and is a 'best practice' guide with an emphasis on Fire Risk Assessment.



TIP

For commercial properties,
see BS 5839-1:2017

BS 5839-6:2019+A1:2020 states:

“

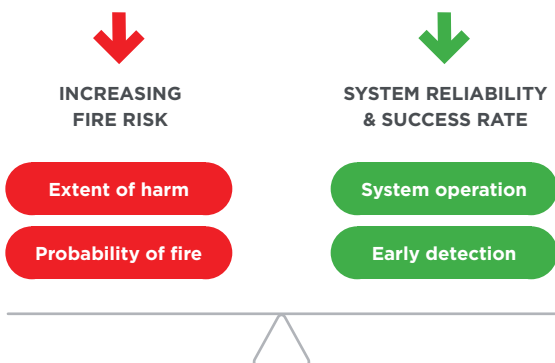
A FIRE DETECTION AND FIRE ALARM SYSTEM, MEETING THE RECOMMENDATIONS GIVEN IN THIS PART OF BS 5839, SHOULD BE INSTALLED IN ALL DOMESTIC PREMISES AND DWELLING UNITS... WHETHER NEW OR EXISTING

It also states that the system should be based on a risk assessment:

“

FINAL DESIGN... SHOULD, WHERE REASONABLY PRACTICABLE, BE BASED ON A FORM OF FIRE RISK ASSESSMENT

This is a case of balancing the below – the higher the probability of fire and extent of harm, the greater the alarm coverage and reliability should be:



Grades


BS 5839-6:2019+A1:2020 splits alarm systems into Grades:

A



Separate detectors & sounders
Mains powered & battery backup
Separate Central control

C



Detectors & sounders sharing
a common power supply
Central control


D1



Mains powered & battery backup
(tamper-proof)



D2



Mains powered & battery backup
(user replaceable)



F1



Battery powered
(tamper-proof)



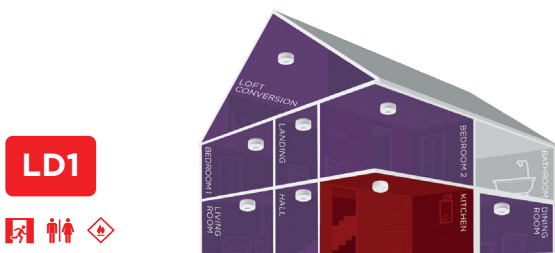
F2



Battery powered
(replaceable)

Categories

BS 5839-6:2019+A1:2020 splits the coverage level of alarm systems into three Categories:



LD 1

Alarms in all circulation spaces and rooms that form part of the escape route(s) and all areas where a fire might start, but not bathrooms, shower rooms or toilets



LD 2

Alarms in all circulation spaces and rooms that form part of the escape route(s), principal habitable rooms and high risk areas



LD 3

Alarms in all circulation spaces and rooms that form part of the escape route(s)

Table 1 - New Build - Owner Occupied Single Storey

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Owner Occupied New Build (Single Storey) Properties:

Grade	D2
Category	LD2 ^D



Ei146e
Optical Smoke
Alarm

Ei144e
Heat Alarm

“

NOTE D - WHERE MORE THAN ONE ROOM MIGHT BE USED AS THE PRINCIPAL HABITABLE ROOM, A SMOKE DETECTOR SHOULD BE INSTALLED IN EACH OF THESE ROOMS... HOWEVER, CONSIDERATION NEEDS TO BE GIVEN TO THE POTENTIAL FOR FALSE ALARMS FROM A SMOKE DETECTOR IN THE LOUNGE IF A KITCHEN OPENS DIRECTLY INTO, OR IS COMBINED WITH, THE LOUNGE.

Table 1 - New Build - Owner Occupied 2-3 Storey

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Owner Occupied New Build (2-3 Storey) Properties:

Grade

Category

D2

LD2^D



Ei146e

Optical Smoke Alarm

Ei144e

Heat Alarm

“

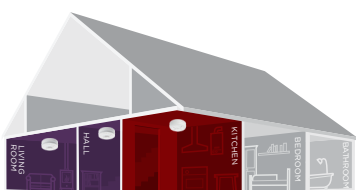
NOTE D - WHERE MORE THAN ONE ROOM MIGHT BE USED AS THE PRINCIPAL HABITABLE ROOM, A SMOKE DETECTOR SHOULD BE INSTALLED IN EACH OF THESE ROOMS... HOWEVER, CONSIDERATION NEEDS TO BE GIVEN TO THE POTENTIAL FOR FALSE ALARMS FROM A SMOKE DETECTOR IN THE LOUNGE IF A KITCHEN OPENS DIRECTLY INTO, OR IS COMBINED WITH, THE LOUNGE.

All information is a guide based on the information contained within Table 1 of BS 5839-6:2019+A1:2020 for properties with no floor greater than 200m². A Fire Risk Assessment may justify a different Grade/Category than that listed. Please refer to BS 5839-6:2019+A1:2020 for full information.

Table 1 - New Build/Existing - Rented Single Storey

As per Table 1 in BS 5839-6:2019+A1:2020,
the standard recommends the below for
Rented New Build and Existing (Single Storey)
Properties:

Grade D1
Category LD2^D



Ei3024
Multi-Sensor
Fire Alarm

Ei3028
Multi-Sensor Heat
and CO Alarm



Ei3016
Optical Smoke
Alarm

Ei3014
Heat Alarm

“

NOTE D - WHERE MORE THAN ONE ROOM MIGHT BE USED AS THE PRINCIPAL HABITABLE ROOM, A SMOKE DETECTOR SHOULD BE INSTALLED IN EACH OF THESE ROOMS... HOWEVER, CONSIDERATION NEEDS TO BE GIVEN TO THE POTENTIAL FOR FALSE ALARMS FROM A SMOKE DETECTOR IN THE LOUNGE IF A KITCHEN OPENS DIRECTLY INTO, OR IS COMBINED WITH, THE LOUNGE.

Table 1 - New Build/Existing - Rented 2-3 Storey

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Rented New Build and Existing (2-3 Storey) Properties:

Grade D1
Category LD2^D



Ei3024
Multi-Sensor
Fire Alarm

Ei3028
Multi-Sensor Heat
and CO Alarm



Ei3016
Optical Smoke
Alarm

Ei3014
Heat Alarm

“

NOTE D - WHERE MORE THAN ONE ROOM MIGHT BE USED AS THE PRINCIPAL HABITABLE ROOM, A SMOKE DETECTOR SHOULD BE INSTALLED IN EACH OF THESE ROOMS... HOWEVER, CONSIDERATION NEEDS TO BE GIVEN TO THE POTENTIAL FOR FALSE ALARMS FROM A SMOKE DETECTOR IN THE LOUNGE IF A KITCHEN OPENS DIRECTLY INTO, OR IS COMBINED WITH, THE LOUNGE.

All information is a guide based on the information contained within Table 1 of BS 5839-6:2019+A1:2020 for properties with no floor greater than 200m². A Fire Risk Assessment may justify a different Grade/Category than that listed. Please refer to BS 5839-6:2019+A1:2020 for full information.

Table 1 - Existing - HMO 1-2 Storey

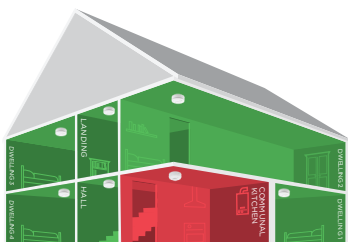
As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Existing (1-2 Storey) HMO properties:

Grade D1
Category LD2^D



Ei3024
Multi-Sensor
Fire Alarm

Ei3028
Multi-Sensor Heat
and CO Alarm



Ei3016
Optical Smoke
Alarm

Ei3014
Heat Alarm

“

NOTE D - WHERE MORE THAN ONE ROOM MIGHT BE USED AS THE PRINCIPAL HABITABLE ROOM, A SMOKE DETECTOR SHOULD BE INSTALLED IN EACH OF THESE ROOMS... HOWEVER, CONSIDERATION NEEDS TO BE GIVEN TO THE POTENTIAL FOR FALSE ALARMS FROM A SMOKE DETECTOR IN THE LOUNGE IF A KITCHEN OPENS DIRECTLY INTO, OR IS COMBINED WITH, THE LOUNGE.

Table 1 - Existing - HMO 3+ Storey

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Existing (3+ Storey) HMO properties:

Individual Dwellings:

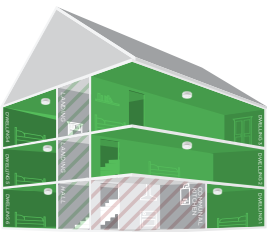
Grade D1
Category LD2^{J,N}

Communal Area:

Grade A
Category LD2



Ei3024
Multi-Sensor
Fire Alarm



Ei3016
Optical Smoke
Alarm

“

NOTE J - DETECTORS MAY NORMALLY BE OMITTED FROM ROOF VOIDS UNLESS THERE ARE SPECIFIC SIGNIFICANT HAZARDS SUCH AS GAS BOILERS OR ELECTRICAL EQUIPMENT FOR PHOTOVOLTAIC SYSTEMS.

“

NOTE N - IN INDIVIDUAL BEDSITS WHICH INCLUDE COOKING FACILITIES, A HEAT OR MULTI-SENSOR FIRE ALARM SHOULD BE FITTED. IN THE CASE OF A MULTI-SENSOR FIRE ALARM, THE PROVISIONS OF AN ALARM SILENCE FACILITY WOULD BE BENEFICIAL.

All information is a guide based on the information contained within Table 1 of BS 5839-6:2019+A1:2020 for properties with no floor greater than 200m². A Fire Risk Assessment may justify a different Grade/Category than that listed. Please refer to BS 5839-6:2019+A1:2020 for full information.

Table 1 - Existing - Sheltered

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for Existing Sheltered properties:

Individual Dwellings:

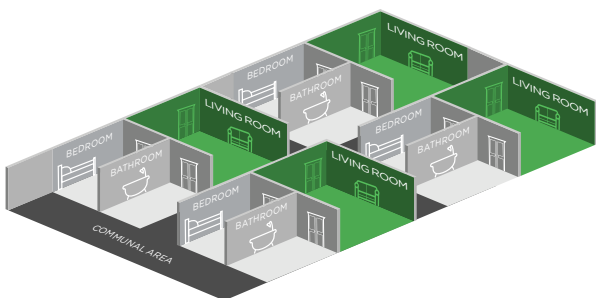
Grade	D2
Category	LD2 ^Q

Communal Area:

Grade	A
Category	L4/L5

Ei146e

Optical Smoke
Alarm



“

NOTE Q - WHERE SHELTERED HOUSING IS UPGRADED, ELECTRICAL WORK SUCH AS A REWIRE IS UNDERTAKEN, OR SMOKE ALARMS ARE REPLACED, A GRADE D (D1 OR D2), CATEGORY LD1 SYSTEM SHOULD BE INSTALLED.

Table 1 - New Build/Existing - Self Catering Accommodation & Supported Housing

As per Table 1 in BS 5839-6:2019+A1:2020, the standard recommends the below for the following single and 2-3 Storey property types:

- Self Catering Accommodation
- Premises with Short-Term Paying Guests
- Supported Housing (properties with not more than 4 bedrooms)

Individual Dwellings:

Grade D1
Category LD1^J

Ei3016
Optical Smoke
Alarm

Ei3014
Heat Alarm

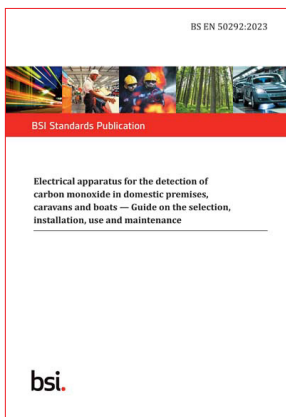


“

NOTE J - DETECTORS MAY NORMALLY BE OMITTED FROM ROOF VOIDS UNLESS THERE ARE SPECIFIC SIGNIFICANT FIRE HAZARDS SUCH AS GAS BOILERS OR ELECTRICAL EQUIPMENT FOR PHOTOVOLTAIC SYSTEMS.

All information is a guide based on the information contained within Table 1 of BS 5839-6:2019+A1:2020 for properties with no floor greater than 200m². A Fire Risk Assessment may justify a different Grade/Category than that listed. Please refer to BS 5839-6:2019+A1:2020 for full information.

BS EN 50292:2023



BS EN 50292:2023 is the main standard for Carbon Monoxide (CO) detection/alarm systems in domestic properties. It is applicable across the whole of the UK to:

- Domestic premises
- Caravans
- Boats

It replaced BS 50292:2013 and is a 'best practice' guide.

CO can be produced by any fuel burning appliance such as:

- Gas/oil boilers
- Gas cookers
- Wood burning stoves
- Gas/coal fires

CO can also be produced by appliances burning:

- Ethanol
- Wood pellets

BS EN 50292:2023 states that these should be covered with CO alarms:

“

AN APPARATUS [CO ALARM] SHOULD BE INSTALLED IN EVERY ROOM CONTAINING A FUEL-BURNING APPLIANCE AND ADDITIONAL APPARATUS [CO ALARMS] SHOULD BE INSTALLED...

- IN REMOTE ROOMS IN WHICH THE OCCUPANT(S) SPEND CONSIDERABLE TIME WHILST AWAKE AND FROM WHICH THEY MAY NOT BE ABLE TO HEAR AN ALARM FROM APPARATUS [CO ALARMS] IN ANOTHER PART OF THE PREMISES.
- AND IN EVERY SLEEPING ROOM

BS EN 50292:2023 – Priority Areas

BS EN 50292:2023 also provides guidance on the priority areas to cover with CO alarms if there are multiple fuel-burning appliances or if the number of CO alarms is limited:

“

IF THERE IS A FUEL-BURNING APPLIANCE IN MORE THAN ONE ROOM AND THE NUMBER OF APPARATUS [CO ALARMS] IS LIMITED, THE FOLLOWING POINTS SHOULD BE CONSIDERED WHEN DECIDING WHERE BEST TO POSITION THE APPARATUS [CO ALARMS]:

- A** LOCATE THE APPARATUS [CO ALARMS] IN A ROOM CONTAINING A FLUELESS OR OPEN-FLUED APPLIANCE, AND
- B** LOCATE APPARATUS [CO ALARMS] IN A ROOM WHERE THE OCCUPANT(S) SPEND MOST TIME

“

IF THERE IS A FUEL-BURNING APPLIANCE IN A ROOM WHICH IS NOT NORMALLY FREQUENTED [FOR EXAMPLE A BOILER ROOM] THE APPARATUS [CO ALARMS] SHOULD BE:

- INTERCONNECTED TO [E.G. SMOKE ALARMS] TO ENSURE AN APPROPRIATE EARLY WARNING IS GIVEN.
- IF CO IS DETECTED IT IS RECOMMENDED THAT THOSE INTERCONNECTED DEVICES OPERATE WITH A SOUND PATTERN THAT IS DIFFERENT FROM [I.E. FIRE ALARM].

BS EN 50292:2023 – Priority Areas

“

IF THERE IS A FUEL-BURNING APPLIANCE IN [E.G. THE BATHROOM], THEN:

- AN APPARATUS SUITABLE FOR HUMID ROOMS SHOULD BE INSTALLED.
- APPARATUS SHOULD BE SUITABLE FOR BATHROOMS AS PER MANUFACTURERS GUIDANCE.

In addition, BS EN 50292:2023 also states to cover flues:

“

WHERE A FUEL BURNING APPLIANCE HAS AN EXTENDED AND/OR CONCEALED FLUE, AN APPARATUS SHOULD BE INSTALLED IN EACH ROOM THROUGH WHICH THE FLUE PASSES THROUGH



All information is a guide based on the details contained within BS EN 50292:2023. Please refer to BS EN 50292:2023 for full information.

Do you know the 6 symptoms of Carbon Monoxide (CO) poisoning?

CO is an extremely poisonous gas that is tasteless, odourless and colourless; it is produced by the incomplete burning of fuels.



Collapse



Dizziness



Headache



Nausea



Unconsciousness



Breathlessness

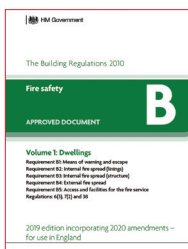
Other Regulations & Legislation

FIRE

In addition to BS 5839-6:2019+A1:2020, there are regional Building Regulations/Standards that are applicable to the following property types:

- New Build
- Materially Altered Dwellings
- Certain Building Extensions

The Regulations for each area are:



Document B

England & Wales



Technical Handbook - Fire

Scotland



Technical Booklet E

Northern Ireland

CARBON MONOXIDE

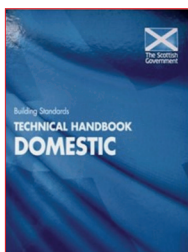
In addition to BS EN 50292:2023, there are regional Building Regulations/Standards that are applicable when fitting varying fuel burning appliance types. The Regulations for each area are:



Document J

England & Wales

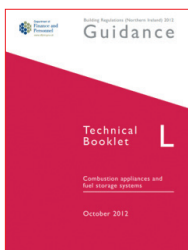
Applicable when fitting new or replacement fuel burning appliances (e.g. wood burners, coal fires etc.)



Technical Handbook - Environment

Scotland

Applicable when fitting new or replacement fuel burning appliances (e.g. any that burn gas, oil, wood and coal) excluding cookers.



Technical Booklet L

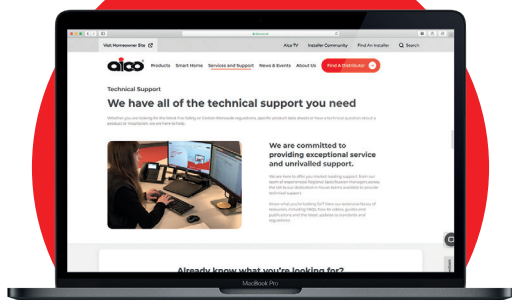
Northern Ireland

Applicable when fitting new or replacement fuel burning appliances (e.g. any that burn gas, oil, wood and coal) excluding cookers.

Further details and information



For further details and information around the regulations listed in this section along with additional applicable standards, visit the Standards & Regulations section of our website.



You can also contact our Technical Team:



technical@aico.co.uk



01691 664100



Live chat - www.aico.co.uk

Select Technical Support



Live video support

Email technical@aico.co.uk to arrange a video call



YouTube

View our library of how-to videos on our YouTube Channel youtube.com/aicoalarms

Alarm Sensor Types

What type of protection do you need?

Discover the different types of sensor available across Aico's extensive range of Fire and Carbon Monoxide protection products.

Multi-Sensor Fire & Carbon Monoxide Alarm	26
Multi-Sensor Fire Alarm	28
Multi-Sensor Heat & Carbon Monoxide Alarm	30
Optical	32
Heat	34
Carbon Monoxide	36
Feature - Dust Compensation	38



TIP

Fitting the correct sensor will give the best protection and avoid false alarms



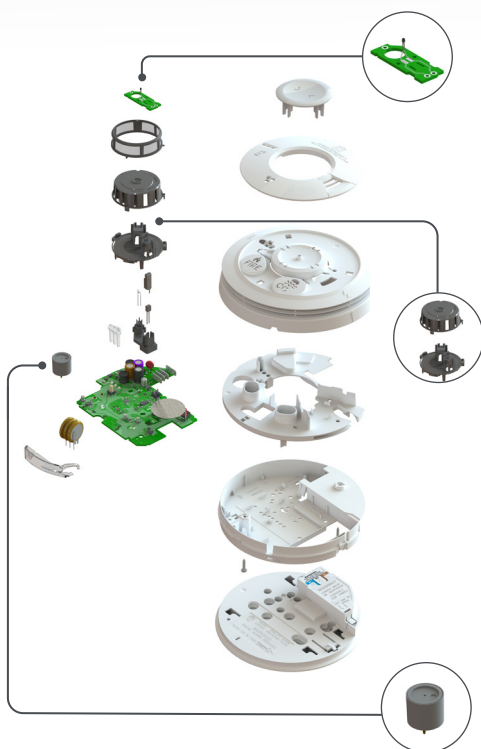
Multi-Sensor Fire & Carbon Monoxide Alarm



Three separate sensors to monitor smoke, heat and Carbon Monoxide.



All sensors are constantly monitored using intelligent software



Heat sensor will trigger from heat alone (at 58°C).

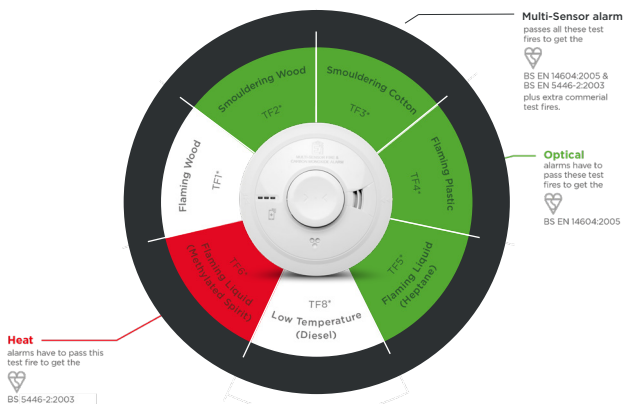
Monitors temperature rise to adjust Optical sensor sensitivity.

Optical sensor will trigger from smoke alone. Automatically increased if heat sensor detects a significant temperature rise.

Proven electrochemical CO Sensor provides accurate CO response.

ALARM SENSOR TYPES | MULTI-SENSOR FIRE & CARBON MONOXIDE ALARM

- ✓ **Ultimate fire & CO response**
- ✓ **Excellent false alarm immunity**
- ✓ **Ideal for all living areas (except kitchens)**



Product shown: Ei3030 -
Mains powered with rechargeable Lithium back-up



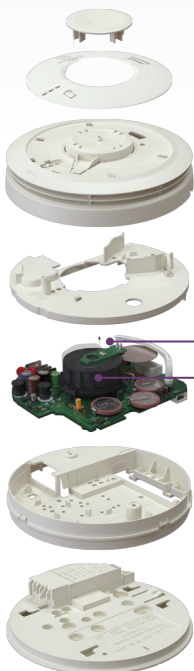
Multi-Sensor Fire Alarm



Two sensors working together to provide the widest fire response



Both sensors are constantly monitored using intelligent software



Heat sensor will trigger from heat alone (at 58°C).

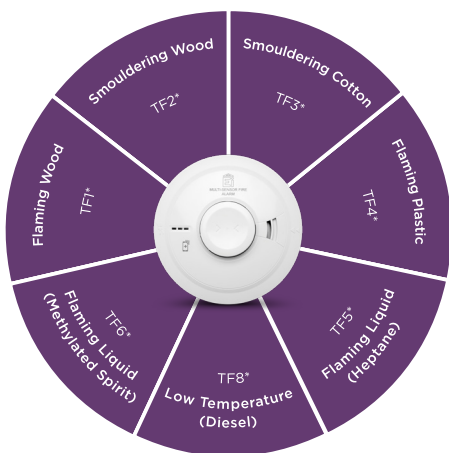
It will also monitor temperature rise to adjust Optical sensor sensitivity.



Optical sensor will trigger from smoke alone.

Optical sensor sensitivity is also automatically increased if heat sensor detects a significant temperature rise.

- ✓ **Widest fire response**
- ✓ **Excellent false alarm immunity**
- ✓ **Ideal for all living areas (except kitchens)**



* Test Fires Category

Product shown: Ei3024 -
 Mains powered with rechargeable Lithium back-up
 Also available: Ei660i & Ei660iRF
 Sealed lithium battery-powered Multi-Sensor Fire Alarm



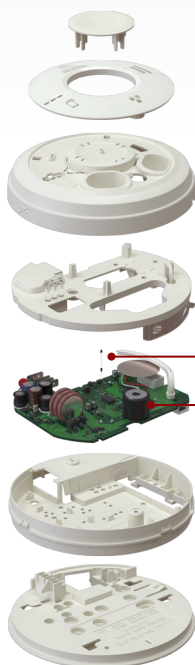
Multi-Sensor Heat & Carbon Monoxide Alarm



Two separate sensors to monitor both fire and Carbon Monoxide (CO)



Both sensors are constantly monitored using intelligent software



Fire

Fast response heat sensor (thermistor) triggers at 58°C



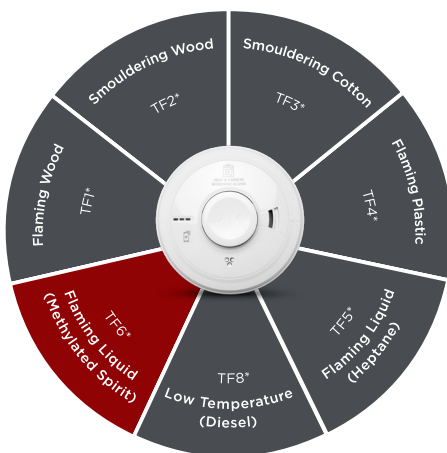
CO

Electrochemical CO sensor triggers when CO gas is sensed from fuel burning appliance/s

- ✓ Both fire and CO coverage from one alarm
- ✓ No false alarms from cooking fumes
- ✓ Ideal for kitchen areas



- Heat sensor for kitchen – temperature response only
- CO sensor to cover any fuel burning appliances (e.g. gas cooker, boiler)



* Test Fires Category

Product shown: Ei3028 -
Mains powered with rechargeable Lithium back-up



Optical Smoke Alarm



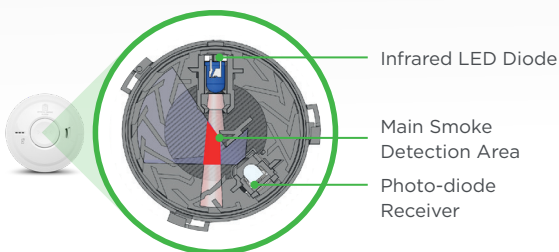
Detects the scattering of light by smoke particles



Uses an Infrared LED and receiver



If smoke enters, light is scattered onto the receiver and the alarm sounds



Ei3016

Mains powered with rechargeable Lithium back-up



Ei146e

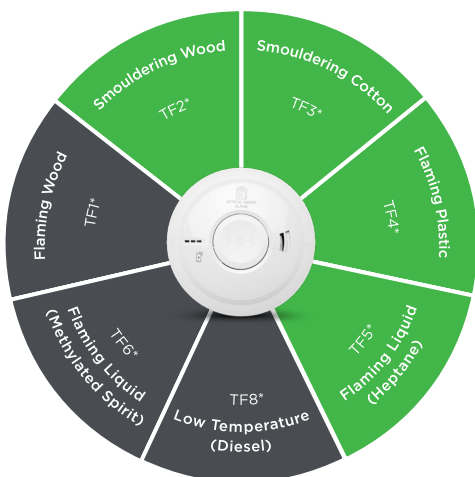
Mains powered with replaceable 9V battery back-up



Ei650iRF

Lithium battery powered

- ✓ Sensitive to large particle smoke
- ✓ Best suited to slow smouldering fires
- ✓ No false alarms from cooking fumes



* Test Fires Category



Heat Alarm



Detects the change in temperature from a fire

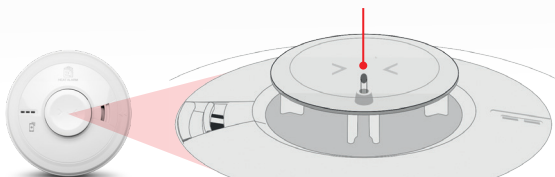


Alarm triggers at 58°C



Heat alarms only respond to heat, not smoke

Fast Response Thermistor



Ei3014

Mains powered with rechargeable Lithium back-up



Ei144e

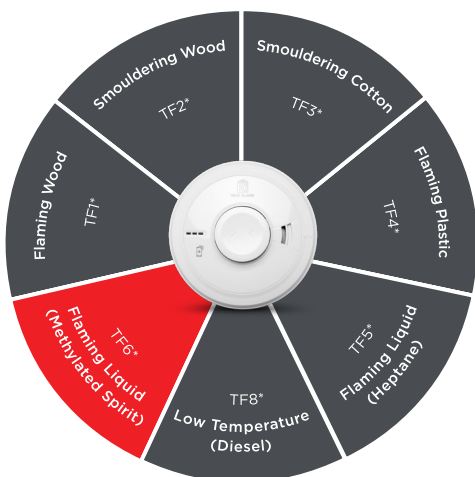
Mains powered with replaceable 9V battery back-up



Ei630iRF

Lithium battery powered

✓ **No false alarms from cooking fumes**



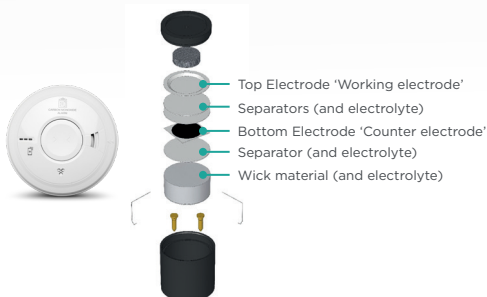
* Test Fires Category



Carbon Monoxide Alarm

- ☁ Detects Carbon Monoxide (CO) gas produced by burning carbon based fuels (e.g. gas, wood, oil, coal)
- 💧 Chemical reaction occurs between CO gas and acid in the sensor, creating a current flow

Current output is proportional to CO level



Ei3018

Mains powered with rechargeable Lithium back-up



Ei208WRF

10 Year Lithium battery powered

- ✓ **Highly accurate response to CO**
- ✓ **Long lifetime (10 years)**



Where should CO alarms be installed?

- Rooms that have any fuel burning appliances – such as an open fire, gas cooker or boiler
- Rooms where people spend the most time – such as a living room
- Rooms where people sleep
- Any room that has a flue running through it
- Rooms which are not normally frequented that have a fuel burning appliance (for example a boiler room)
- Humid rooms with a fuel burning appliance, such as bathrooms, should have an alarm suitable for humid locations as per manufacturers guidance (applicable to Aico's Ei200 Series)



TIP

CO gas is invisible and odourless, fit a CO alarm to detect it

*Guidance based on BS EN 50292:2023 50292:2023

Dust Compensation



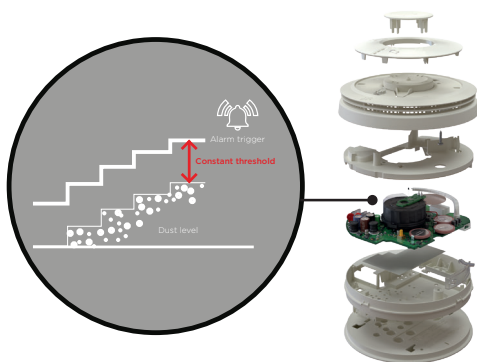
3000 Series alarms with optical smoke sensors contain automatic dust compensation



Reduces the risk of false alarms from dust/insect build up



Automatically recalibrates for dust but maintains threshold (amount of smoke needed to trigger the alarm)



Available in:



Ei3030
Multi-Sensor
Fire & CO
Alarm



Ei3024
Multi-Sensor
Fire Alarm



Ei3016
Optical Smoke
Alarm



Ei650iRF
Optical Smoke
Alarm



Ei660iRF
Multi-Sensor
Fire Alarm



Ei146e
Optical Smoke
Alarm

Siting

Where should alarms be sited?

When installing alarms, you need to install in the correct location for the quickest response. This section will give you all the help you need.

Hallways, Landings & Stairways	40
Kitchen	42
Other Rooms	43
Peaked & Sloped Ceilings	44
Beams	45
Restricted Spaces	46
CO - Room with Appliance	47
CO - Rooms without an Appliance	48

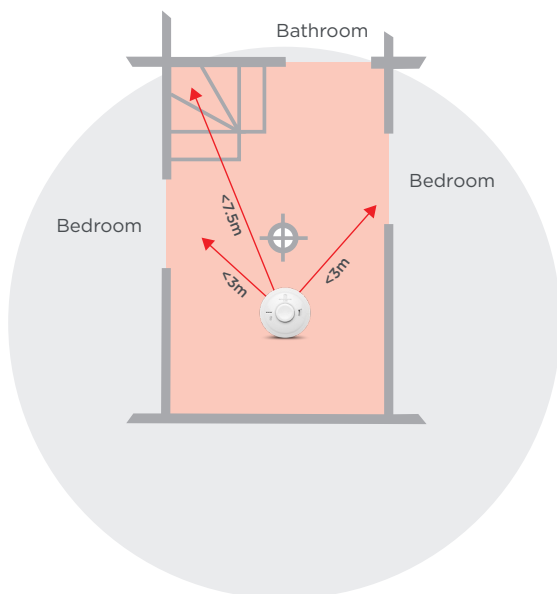


TIP

It is important to site alarms correctly so smoke/heat/CO reaches the alarm as quickly as possible

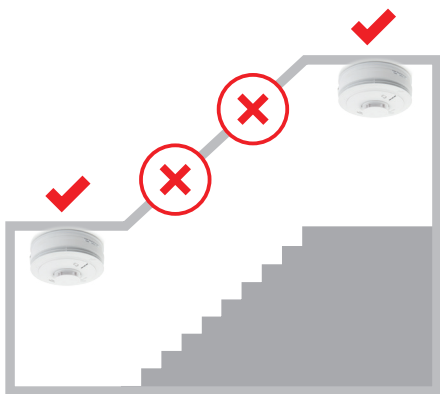
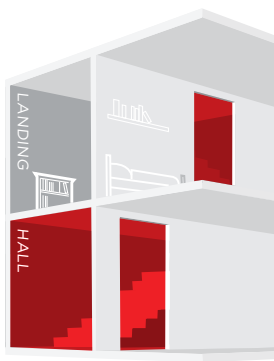
Hallways and Landings

- Less than 3m from any bedroom door
- Between high risk rooms and bedrooms
- Away from bathroom door
- Within 7.5m of any point within the area to be protected
- 300mm minimum from walls, light fittings and obstructions



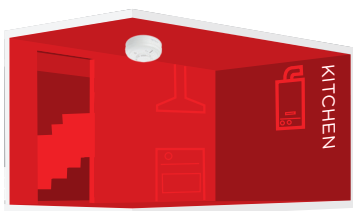
Stairways

- An alarm centrally on the ceiling in the ground floor hallway
- An alarm centrally on the ceiling on all subsequent floors
- Do not site alarms on the wall or any sloping parts of the ceiling



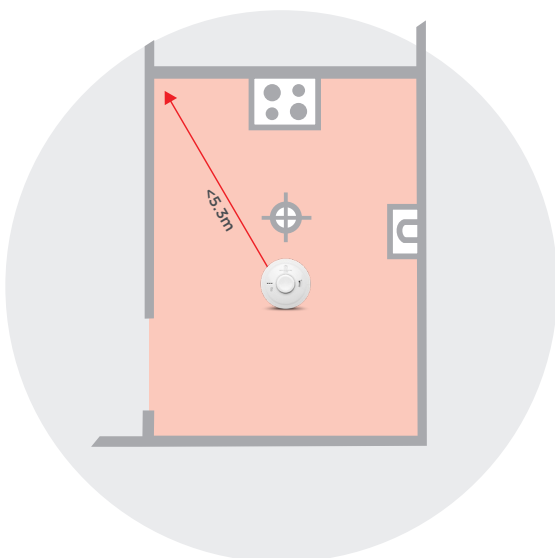
The above is guidance based on BS 5839-6:2019+A1:2020. For further information, please refer to this standard

Kitchen

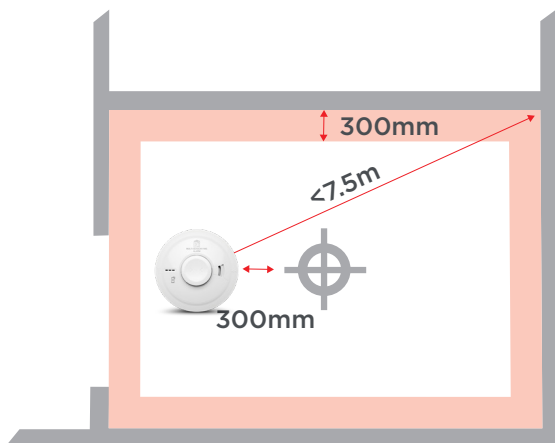


Heat Alarms

- Centrally site on ceiling
- 5.3m coverage radius
- 300mm minimum from walls, light fittings and obstructions
- Consider location of alarm and cooker/hobs – do not site directly above
- Heat alarms should be ceiling mounted only



Other Rooms



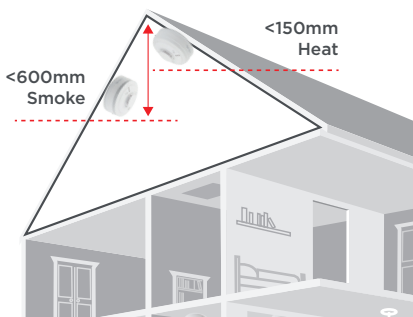
Smoke Alarms

- Centrally site on ceiling
- 300mm minimum from walls, light fittings and obstructions
- Less than 7.5m from the alarm to the edge of coverage area

The above is guidance based on BS 5839-6:2019+A1:2020. For further information, please refer to this standard

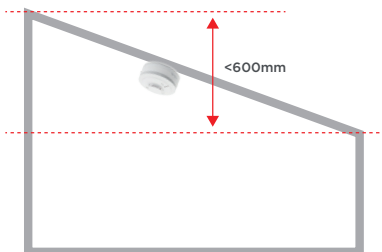
Peaked Ceilings

- BS 5839-6:2019+A1:2020 recommends:
 - **Smoke Alarms** - sited so sensitive elements are between 25mm and 600mm below the ceiling
 - **Heat Alarms** - sited so sensitive element is between 25mm and 150mm below the ceiling
 - Multi-Sensor in loft area if electrical equipment (e.g. PV systems, invertors) is present



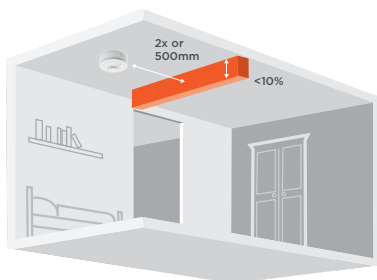
Sloped Ceilings

- Same recommendations apply as peaked (apex) ceilings above
 - **Unless:** If the drop between the peak and eaves is less than 600mm - the ceiling should be treated as flat



Beams

Beam Depth Less Than 10% of Room Height



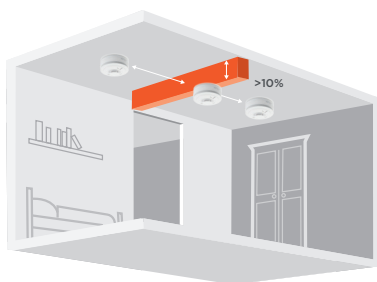
- Site away from the beam:
 - Twice the depth of the beam

OR

- 500mm

Whichever is less

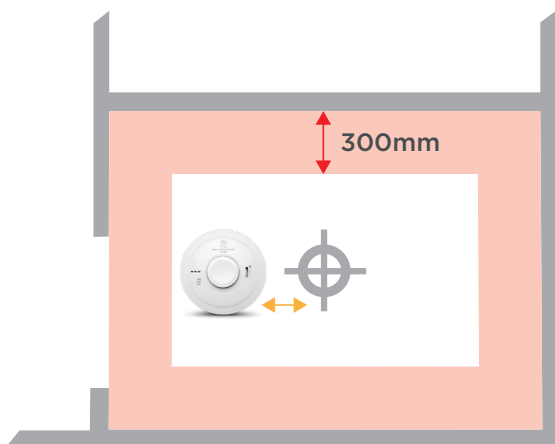
Beam Depth More Than 10% of Room Height



- Treat as a wall:
 - Site alarms both sides
- OR**
- If the beam is less than 600mm deep, site on the underside of the beam

The above is guidance based on BS 5839-6:2019+A1:2020. For further information, please refer to this standard

Restricted Spaces



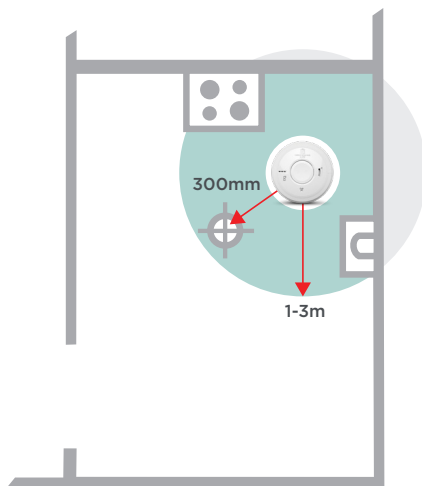
- Alarms should be sited away from dead air spaces located in corners
 - Minimum 300mm from walls
- If 300mm can not be achieved from both the light fitting and the walls, **compromise on the measurement from the light fitting only**

The above is guidance based on BS 5839-6:2019+A1:2020. For further information, please refer to this standard

Rooms with an Appliance

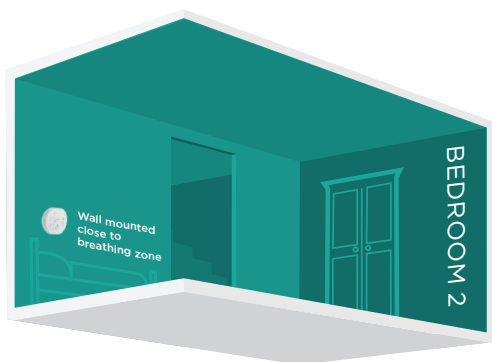


- Ideally site on the ceiling
- 300mm minimum from walls and obstructions
- 1-3m horizontally from the appliance
- More than one appliance – site alarm between both appliances
- If the appliance is enclosed (e.g. in a cupboard), site alarm outside cupboard etc.



The above is guidance based on BS EN 50292:2023. For further information, please refer to this standard

Rooms without an Appliance



- Wall mount at breathing height
- Normally bedhead height in bedrooms

Don't mount CO alarms

- ❌ In an enclosed space
- ❌ Next to a door, window, extractor fan or vent
- ❌ Where it is damp/humid, unless the alarm is suitable for bathrooms as per manufacturers guidance (applicable to Aico's Ei200 Series)

The above is guidance based on BS EN 50292:2023.
For further information, please refer to this standard

Installation

All you need to know about installing Aico alarms.

The advanced features of Aico alarms make installation as easy as possible, with wireless linking and more.

Power Supply	50
Interconnection - Hard-wired	51
Interconnection - Radio Frequency	52
Interconnection - Hybrid	53
Interconnection - Fire & Carbon Monoxide	54
RF House Coding	56
Cable Types & easi-fit base	58



TIP

Wireless RF Interconnection can save time, mess and disruption - no interconnect cables are needed

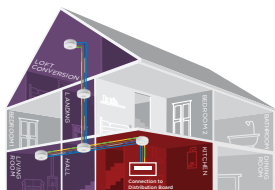
Power Supply

For hard-wired Grade D1 and Grade D2 systems there are two options for the power supply:



Supply taken from the lighting circuit (recommended)

Note: permanent live feed required



Supply taken from the consumer unit

BS 5839-6:2019+A1:2020 states:

“

THE MAINS SUPPLY TO THE SMOKE ALARMS AND HEAT ALARMS SHOULD TAKE THE FORM OF EITHER:

- 1) AN INDEPENDENT CIRCUIT AT THE DWELLING'S CONSUMER UNIT...
- 2) A SEPARATELY ELECTRICALLY PROTECTED, REGULARLY USED LOCAL LIGHTING CIRCUIT...



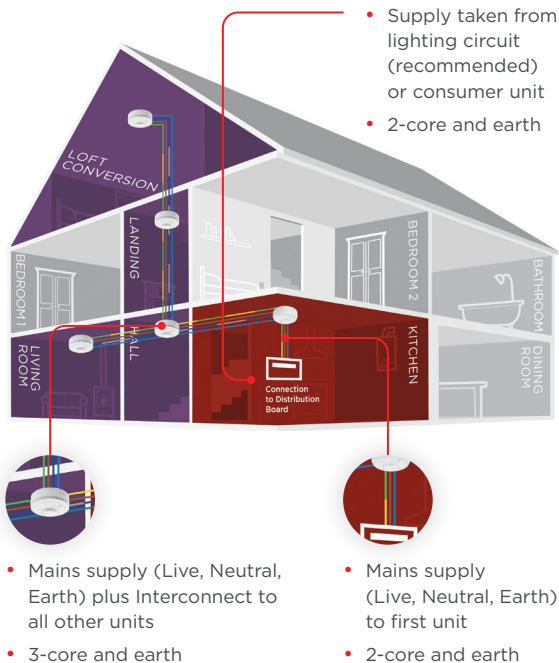
For wireless interconnection Grade D1 and Grade D2 systems, the supply should be taken from the lighting circuit closest to each alarm.



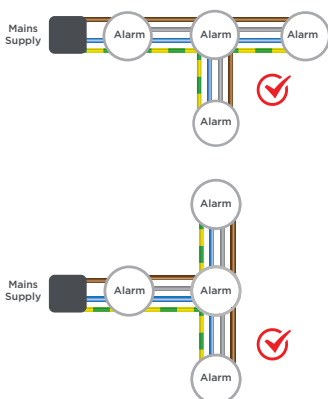
Supply taken from the lighting circuit

Note: permanent live feed required

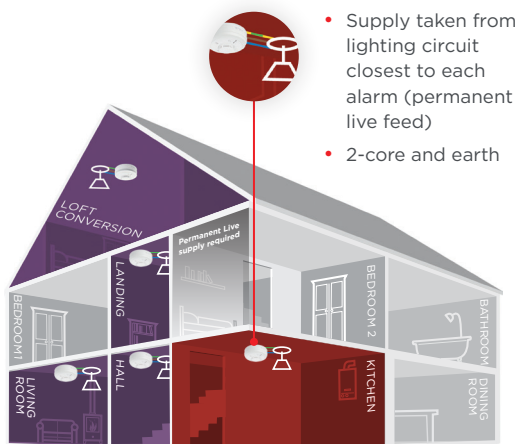
Hard-wired Interconnection - System Overview



Alarms can be wired in any configuration, as long as the connections above are carried through to all alarms:



RF Interconnection - System Overview



Maximum distance between alarms – 30m from one side of circuit to the other but this will vary due to building construction, layout etc.

Each alarm needs to have a SmartLINK® module or RadioLINK base:

3000 Series



Ei3000MRF



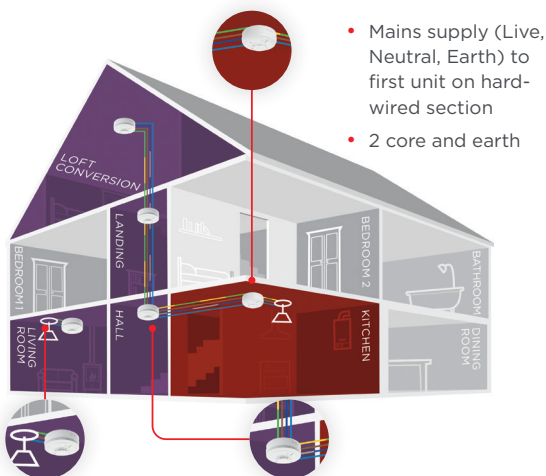
140e Series



Ei168RC



Hybrid Interconnection (RF & Hard-wired mixed) - System Overview



- RF alarm – supply taken from lighting circuit closest to alarm (permanent live feed)
- 2-core and earth
- Add RF module/base to alarm
- Mains supply (Live, Neutral, Earth) plus Interconnect to other units on hard-wired section
- Supply taken from lighting circuit closest to alarm (permanent live feed)
- 3-core and earth
- Add RF module/base to one alarm only

The RF alarm plus **one** alarm on the hard-wired section need to have a SmartLINK® module or RadioLINK base:

3000 Series



Ei3000MRF



140e Series



Ei168RC



Interconnected Smoke, Heat and Carbon Monoxide Alarm Systems

When interconnecting smoke or heat alarms with Carbon Monoxide (CO) alarms it is strongly recommended to install an Alarm Controller. This allows:

- Identification of the type of alarm that has triggered the system
- Location of triggered alarm
- Simple testing of entire system



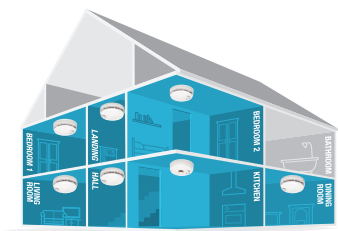
Fire, Smoke or Heat Alarm triggers

Fire indicator flashes on the Controller



CO Alarm triggers

CO indicator flashes on the Controller



Press to **TEST** all alarms



All alarms sounding, press to **LOCATE** triggered alarm





Alarms accidentally triggered, press to **SILENCE**



Alarm Controller - Ei450



- No wiring – 10 year lithium battery
- One button – three functions (test, silence, locate)
- RF interconnection with  **SmartLINK**® and  **RadioLINK**™ alarms
- Alarm indicator lights

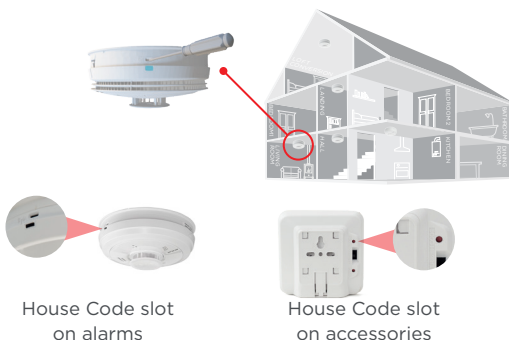


House Coding

RF interconnected alarms and accessories need to be House Coded when installing. This will code them together as a system, meaning they won't trigger or respond to any neighbouring systems.

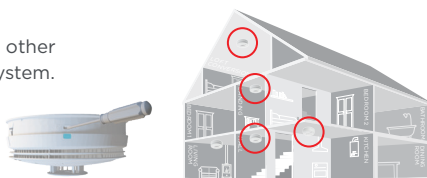
Step 1

Insert screwdriver into **House Code slot** of first unit until blue light comes on, then release. It will start flashing.



Step 2

Repeat on all other units in the system.

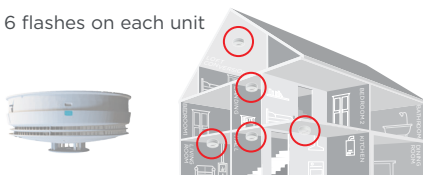


Step 3

Check the number of blue flashes
equals the number of units in the system

E.g. 4 units = 4 flashes on each unit

6 units = 6 flashes on each unit



Note - The Ei3030 Multi-Sensor Fire & CO Alarm and the Ei3028 Heat & CO Alarm will show two flashes, one for fire and one for CO

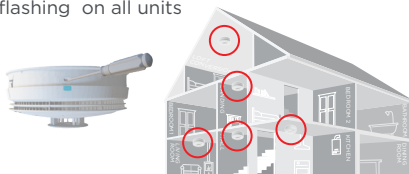
Step 4

Units will **automatically seal after 30 minutes** –
House Code lights will stop flashing

OR

System can be **manually sealed**

On any unit, insert screwdriver in House Code slot until blue light **comes on solidly**, then release. House Code lights will stop flashing on all units

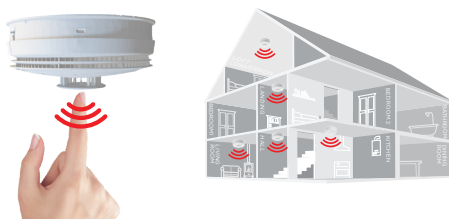


House Code mode - timings

5 mins	<ul style="list-style-type: none"> • Sends out its own House Code (serial number) • Receives and records other units House Codes (serial numbers)
10 mins	<ul style="list-style-type: none"> • Sends out all House Codes (serial numbers) in memory
5 mins	<ul style="list-style-type: none"> • Sends out its own House Code (serial number) • Receives and records other units House Codes (serial numbers)
10 mins	<ul style="list-style-type: none"> • Sends out all House Codes (serial numbers) in memory

Step 5

Press and **hold the test button** on each unit in turn and check all alarms sound

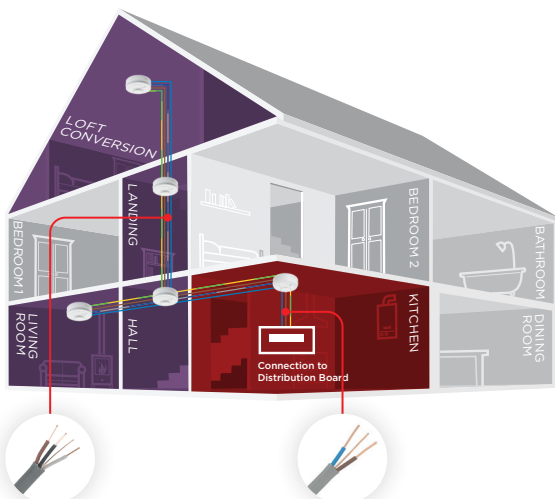


TIP

Watch a video on House Coding – scan the code



Cable Types



PVC/PVC 3-C&E (3 Core and Earth) - Solid copper core

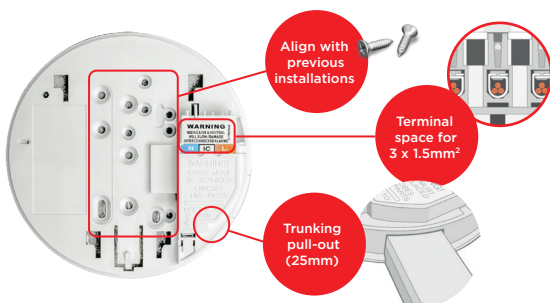
Smoke Alarms with
Hard-wired Interconnect

PVC/PVC T&E (Twin and Earth) - Solid copper core

Smoke Alarms power
supply



All mains powered alarms come supplied with an easi-fit base, which has been designed with features to make installation quick and easy.



Testing & Commissioning

Testing an alarm system

Once a system is installed, it's important that it is tested initially and then regularly on an ongoing basis.

Testing Alarms	60
Testing Using An Alarm Controller	61
Smoke & CO Simulation	62
Certification	63
Insulation Testing	64



TIP

An Alarm Controller can make testing a system quicker and easier

Testing Alarms

It is recommended to test alarms both as part of the installation and commissioning and also on a regular ongoing basis – at least monthly as stated in **BS 5839-6:2019+A1:2020**.

- Press and hold the test button
- Check all interconnected alarms sound
- Repeat on each alarm in the system



- Carry out the steps above with both mains power on and mains power off (green light off)



1st Test – Green light on

2nd Test – Green light off ('dead' test)



Ei3030 and Ei3028 Fire & CO Multi-Sensor

Test will toggle between Fire and CO

Note - The Ei3030 Multi-Sensor Fire & CO Alarm and the Ei3028 Heat & CO Alarm will show two flashes, one for fire and one for CO



Tip - The test button simulates smoke/heat/CO being present at the sensor – it's our recommended method of testing

Testing Using An Alarm Controller

Using a wall mounted Alarm Controller can make regular testing easier as all alarms can be tested from one central point.

- Press and hold the button on the Controller
- Check all interconnected alarms sound
- Release the button - all alarms should silence after a few seconds



This is a full test of all alarms and is equivalent to pressing the test button on all alarms simultaneously.

-
- The Alarm Controller can also be removed from its wall plate if you wanted to carry out a 'walk round' test

Slide up to remove
from wall plate

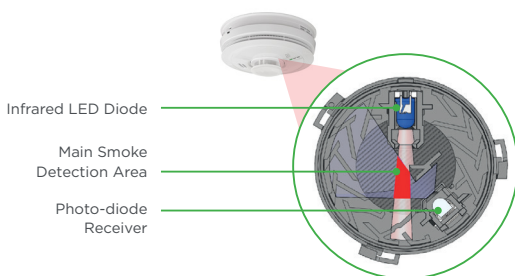


Smoke Simulation

Pressing the test button on an Ei smoke alarm increases the sensitivity of the smoke chamber to simulate smoke being present.

In alarms with an Optical sensor:

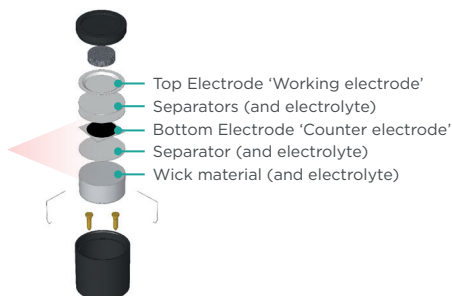
- Photo-diode receiver doesn't normally see light from Infrared diode
- Pressing the test button increases receiver sensitivity by 10+ times
- Receiver picks up infra-red 'back-scatter', simulating smoke
- Alarm sounds



CO Simulation

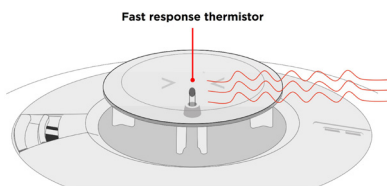
Pressing the test button on an Ei CO alarm increases the current output from the CO sensor, simulating CO being present.

- Current output from sensor is proportional to CO level
- Pressing the test button adjusts the current output
- Simulates CO being present at the sensor
- Alarm sounds



Heat Simulation

Pressing the test button on an Ei heat alarm causes the reference voltage to be increased; this causes the difference between this voltage and the thermistor voltage to increase.



Certification

On installation of a smoke/heat alarm system, a commissioning certificate should be supplied:

- **BS 5839-6:2019+A1:2020** references smoke testing of alarms
- We recommend using the test button – this is designed to simulate smoke and give a full test of the alarm/s
- On the commissioning certificate, insert a variation stating that manufacturer's instructions have been followed:

“ THE REQUIREMENTS OF PARAGRAPH N) SECTION 1) OF CLAUSE 23.3 HAVE NOT BEEN PERFORMED, HAVING BEEN SUBSTITUTED BY FOLLOWING THE INSPECTION AND TESTING PROCEDURE RECOMMENDATIONS CONTAINED WITHIN THE SITING AND INSTALLATION INSTRUCTIONS SUPPLIED BY THE MANUFACTURER OF THE SMOKE/HEAT ALARMS INSTALLED.

Download the Handybook app to generate certificates:



Insulation Testing



BS 5839-6:2019+A1:2020 references insulation testing of cabling:

“

ALL INSTALLED CABLES WITH A MANUFACTURER'S VOLTAGE RATING SUITABLE FOR MAINS USE SHOULD BE SUBJECT TO INSULATION TESTING AT 500V DC. PRIOR TO THIS TEST, CABLES SHOULD BE DISCONNECTED FROM ALL EQUIPMENT THAT COULD BE DAMAGED BY THE TEST...

Due to the unique design of our alarms, we recommend the following:



Alarms on easi-fit base

Slide the alarms off the base. Base can be left connected.



RadioLINK bases

Disconnect wiring. The base contains components that could be damaged.

Maintenance & Fault Finding

**Think you have a problem?
Find out here.**

Aico alarm systems need regular maintenance to stay working at their best. They can even tell you about any maintenance issues – read on to find out more.

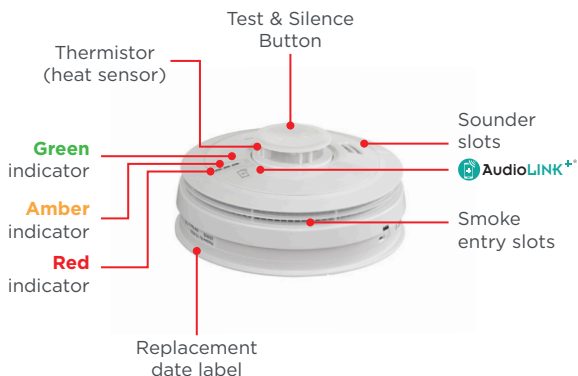
Parts of an Alarm	66
Alarm Indicator Lights	67
Alarm Labelling	68
Alarm Cleaning	69
AudioLINK+ Reporting	70
Full Alarm State	72
Regular & Irregular Beeping	73
Incorrect House Code Flashes - Too Few	74
Incorrect House Code Flashes - Too Many	75
Alarm Replacement	76

TIP



Look for alarms with AudioLINK+ data extraction - these can give you a full report to assist with testing and maintenance

Smoke, Heat and Multi-Sensor Fire Alarms



CO Alarms

In place of the smoke entry slots above, alarms with CO sensors will have CO gas entry holes:



Alarm Indicator

Flashes to indicate:

- Unit in alarm
- Self test, every 40 seconds (Ei140e, Ei160, Ei2110e Series alarms only)



Status/Fault Indicator

Present on Ei3000, Ei260, Ei208 and Ei600 Series

Flashes to indicate:

- Low battery
- Sensor fault
- End of life
- Dust compensation limit reached



Power Indicator

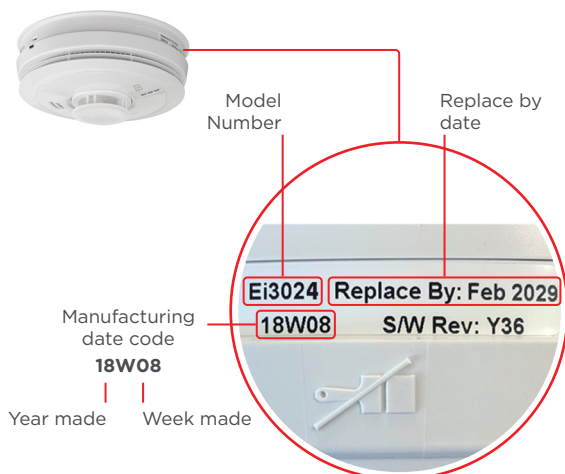
Constantly on when mains power is on

3000 Series – Flashes every 48 seconds when powered by battery back-up. Pulses on test

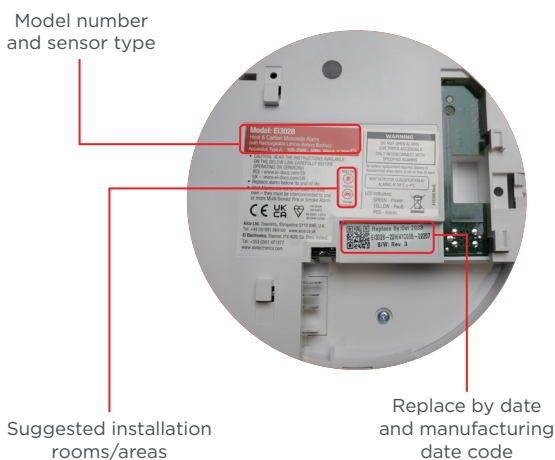
208 Series – Flashes every minute when powered. Flashes every second on test



Date Code Label - Side of Alarm



Alarm Label - Rear of Alarm



Alarm Cleaning

Alarms may be subject to potential dust/insect build up if not periodically cleaned. It is recommended that alarms are cleaned monthly.



TIP

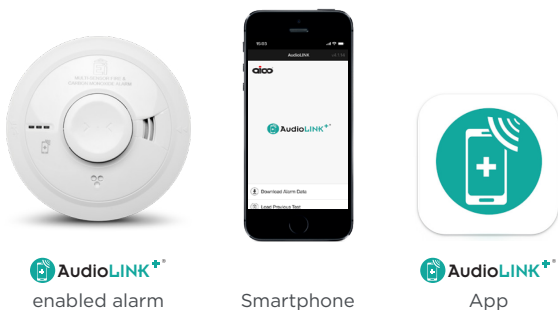


All 3000 Series Smoke/Optical Alarms have automatic dust compensation, virtually eliminating the risk of false alarms

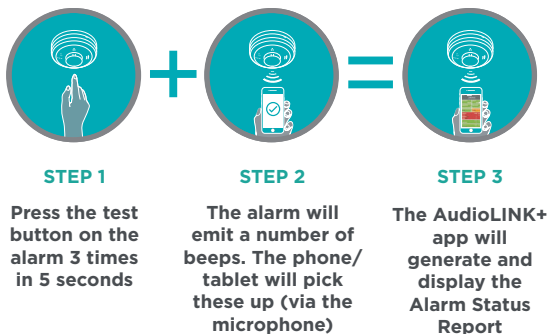


An AudioLINK+ report can be taken during testing/maintenance visits. This provides a full report of all aspects of an alarm.

Parts Needed



Extracting The Data



The AudioLINK+ Report

The screenshot shows the 'Ei3028 Report' for Jan 10, 2017, 3:12 pm. The interface includes sections for alarm age, mains power status, battery level, sensor status, and various CO and temperature alarms. Red lines from the text on the right point to specific data fields in the report.

Ei3028 Report													
Jan 10, 2017, 3:12 pm													
ALARM AGE	10.6 days												
REPLACEMENT DUE	Jan 2028												
MAINS POWER STATUS OFF	TIMES MAINS POWER OFF LAST TIME 0												
ALARM ON FOR 3.7 days	BATTERY												
LOW BATTERY	EVENTS 0 LAST EVENT -												
SENSOR STATUS	OK												
TEST BUTTON ACTIVATIONS LAST TIME 0.3 days 3	TIMES ALARM REMOVED LAST TIME 0												
<table border="1"> <thead> <tr> <th></th> <th>ALARMS</th> <th>LAST EVENT</th> </tr> </thead> <tbody> <tr> <td>HIGH CO >150ppm</td> <td>0</td> <td>-</td> </tr> <tr> <td>MEDIUM CO >90ppm</td> <td>1</td> <td>0.3 days</td> </tr> <tr> <td>LOW CO >45ppm</td> <td>2</td> <td>0.8 days</td> </tr> </tbody> </table>			ALARMS	LAST EVENT	HIGH CO >150ppm	0	-	MEDIUM CO >90ppm	1	0.3 days	LOW CO >45ppm	2	0.8 days
	ALARMS	LAST EVENT											
HIGH CO >150ppm	0	-											
MEDIUM CO >90ppm	1	0.3 days											
LOW CO >45ppm	2	0.8 days											
PEAK CO LEVEL LAST TIME 1 day 100ppm	PRESENT CO LEVEL 0ppm												
<table border="1"> <thead> <tr> <th></th> <th>EVENTS</th> <th>LAST EVENT</th> </tr> </thead> <tbody> <tr> <td>BACKGROUND CO >20ppm FOR 30 MINUTES</td> <td>10</td> <td>0.3 days</td> </tr> </tbody> </table>			EVENTS	LAST EVENT	BACKGROUND CO >20ppm FOR 30 MINUTES	10	0.3 days						
	EVENTS	LAST EVENT											
BACKGROUND CO >20ppm FOR 30 MINUTES	10	0.3 days											
<table border="1"> <thead> <tr> <th></th> <th>ALARMS</th> <th>LAST EVENT</th> </tr> </thead> <tbody> <tr> <td>HEAT</td> <td>0</td> <td>-</td> </tr> </tbody> </table>			ALARMS	LAST EVENT	HEAT	0	-						
	ALARMS	LAST EVENT											
HEAT	0	-											
PEAK TEMPERATURE DETECTED LAST TIME 0.7 days 30°C	LOWEST TEMPERATURE DETECTED LAST TIME 0.8 days 10°C												
PRESENT ROOM TEMPERATURE 24°C													

Model number, date, time

Age/replacement date
(3000 and 600 Series only)

Power information
(Mains power info -
3000 Series only)

Sensor information

Testing and removal
information (Note:
Removing alarm does not
reset data on 3000 Series
alarms. Other alarms
resets 'Peak CO' only)

Fire/CO activation
information

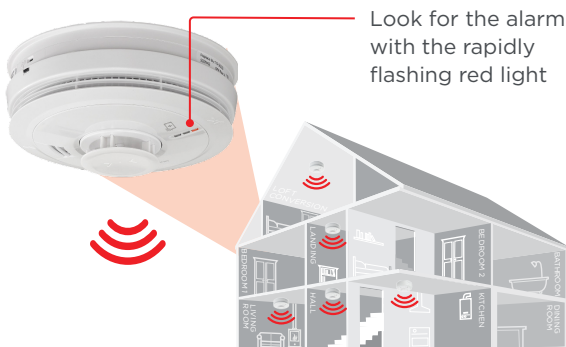
Tap on location to add
address and installation
information.

Tap 'Send' to
email a copy
of the report.

The screenshot shows the 'Property' section of the app. It includes a 'Use Previous Address' button and several input fields for address information: House Name/No, Street, Town, Postcode, and UPRN. A red line from the text on the right points to the 'Send' button at the top right of the screen.

If all alarms are sounding **assume that there is Fire or CO present – do not assume it is a false alarm.**

Check for Source of Alarm



If an Alarm Controller is fitted, check the flashing icon and press to Locate alarm

Possible Causes and Solutions

Contamination from dust or insects

- ✓ Clean alarms with vacuum and retest system

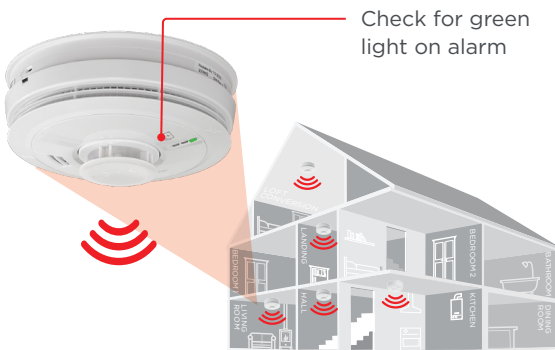
Another alarm may actually be the trigger

- ✓ Check source by looking for rapidly flashing red light or using the locate function on an alarm controller.
- ✓ Once the alarms have stopped sounding, AudioLINK+ can be taken from each alarm to help determine which alarm triggered the system.

Wiring short across Interconnect and Neutral or damage to cable

- ✓ Check wiring and rectify

Regular Beeping



Battery back-up may be depleted

- ✓ Rechargeable back-up models – reinstate mains power (green light on)
- ✓ Replaceable back-up models – change battery



Irregular Beeping

Loose cables

- ✓ Slide alarms off and check connections on easi-fit base

Interference – cables running too close to fluorescent lights, inductive loads etc.

- ✓ Route cabling away from sources of interference. RF modules/bases can remove need for interconnect cabling

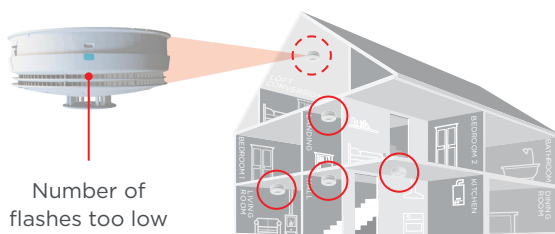
Another device

- ✓ Check that other devices aren't the source of the beeping (e.g. clocks, washing machines etc.)



Incorrect House Code Flashes - Too Few

If the number of House Code flashes on each alarm is lower than the number of units in the system, not all House Code serial numbers have been picked up by all alarms.



Solution – Repeat House Coding

Insert screwdriver into **House Code slot** of first unit until blue light comes on, then release. It will start flashing.

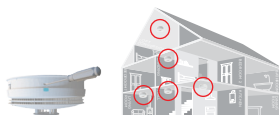


Repeat on all other units in the system

Leave for full 30 minute House Coding period



As this is happening, **check the number of blue flashes** equals the number of units in the system



Press and **hold the test button** on each unit in turn and check all alarms sound





Incorrect House Code Flashes - Too Many

If the number of House Code flashes on each alarm is higher than the number of units, alarms have likely picked up extra House Code serial numbers from surrounding systems. **Please note, the Ei3028 and Ei3030 multi-sensors contribute 2x flashes.**



Number of
flashes too high

Solution – Factory Reset and Re-House Code Every Alarm

Insert screwdriver into **House Code slot** of first unit until blue light comes on, then starts flashing (around 6 seconds). Release screwdriver



Repeat on all other units in the system. The system is now reset to factory setting



House Code all alarms in the system. Check number of blue flashes equals number of units



Press and **hold the test button** on each unit in turn and check all alarms sound. Check surrounding systems do not sound



Alarm Replacement

If you are replacing an old alarm that is no longer available, the below shows the equivalent model numbers:

Model

Replacement Alarm/s



Ei141RC
Ei144RC
Ei146RC



Ei146e
Ei144e
Ei146e



Ei151TL
Ei154TL
Ei156TLH



Ei3024
Ei3014
Ei3024, Ei3016



Ei161RC
Ei164RC
Ei166RC



Ei3024
Ei3014
Ei3024, Ei3016



Ei205ENA
Ei225EN
Ei261ENRC
Ei262



Ei208
Ei3018
Ei3018
Ei3018 + Ei3000MRF

Scan to view all products on the Aico website:



Connected Home

Aico with HomeLINK offer a network of alarms and sensors to improve the health and safety of homes throughout the UK.

The Connected Home Solution	78
Ei3000MRF SmartLINK Module	80
SmartLINK App	80
Ei1000G Gateway	81
HomeLINK Environmental Sensors	82
HomeLINK Portal & Resident App	83
Event Reporting	85
Compatible Products	87
Installation	88
Set Up	90
Testing An Event	92
Adding A Unit	94
Removing A unit	95
Troubleshooting	96

POWERFUL INSIGHTS.
PROACTIVE MAINTENANCE.
PREVENTATIVE MEASURES.



THE **HomeLINK®** CONNECTED HOME SOLUTION

A proven and scalable solution for the challenges faced by housing providers, while generating a return on investment. The HomeLINK Connected Home Solution assists with:



Pinpointing the cause of damp & mould



Improving compliance & asset management



Achieving net zero



Enhancing fire safety



Scan the QR code to find out more



The Connected Home Solution

Our home life safety products wirelessly connect to our Ei1000G Gateway; an award-winning system that extracts and collates data from our alarm heads and HomeLINK Environmental Sensors. The data is available from a user-friendly portal, providing actionable insights for preventative measures and proactive maintenance of housing stock.



Simply plug-in the Ei3000MRF SmartLINK module for wireless interconnection between alarms and to communicate with the Gateway. For Alarms and Environmental Sensors, scan the device's QR code and install via the SmartLINK app.



Install the Gateway to provide communication to HomeLINK Portal.



Set-up the HomeLINK Portal to receive:

- Live connected monitoring of compatible alarm systems
- Notifications of alarm activations and system events via alert, text message or e-mail
- Actionable insights from HomeLINK Environmental Sensors

Ei3000MRF SmartLINK Module

The Ei3000MRF Module allows for wireless interconnection and data extraction. Simply plug in to any 3000 Series alarm.

- No need for tricky cable runs, alarms interconnect using Radio Frequency signals
- When one alarm is triggered, all others sound for audibility throughout the property
- Expand existing systems easily by adding in SmartLINK technology
- Achieve remote whole-system data monitoring and extraction when access is not possible



SmartLINK App

- Used for installation and setup of Gateway systems
- Allows for scanning of Alarms and Environmental Sensors
- Enter property and room data





Ei1000G Gateway

Aico's alarms and sensors connect with the Gateway; an innovative and award-winning system that provides insights into the health and safety of connected homes.

The Ei1000G uses wireless interconnection technology to link every alarm and sensor in a property to provide actionable insights via the HomeLINK Portal.



Enables remote management of RF Alarms



Mains powered with rechargeable back-up



Transmits data via GSM network - built-in SIM



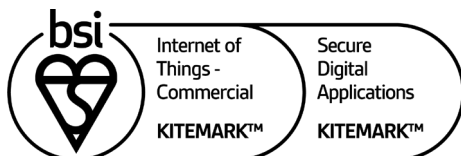
Wall mounted



Compatible with SmartLINK, RadioLINK+ alarms and accessories



Compatible with HomeLINK Environmental Sensors



KM 735628

KM 743214



HomeLINK Environmental Sensors

Our Environmental Sensors have been designed to create better maintained, healthier, energy efficient homes.

Sensors monitor temperature, humidity and CO₂ to provide insights into indoor environmental conditions, helping to overcome many challenges, from compliance and carbon footprint to mould risk and fuel poverty.

SmartLINK compatibility combined with Advanced Machine Learning technology means that invaluable data readings from the Sensors are constantly extracted, interpreted and reported via the HomeLINK Portal.



HomeLINK Portal

Designed with landlords, the analytics platform displays data insights via a user-friendly portal.

From indoor air quality and mould risk to allergens and draught risk, there's a wealth of actionable insights available, segmented by high, medium and low risk.



HomeLINK App for Residents

With the HomeLINK App, residents are provided with a healthy home rating, temperature, humidity and CO₂ data, and advice on the measures they can take to improve the health and safety of their home.

By empowering residents with their data and personalised insights, landlords will see improvements in the health of their properties with less intervention.





activations in the past 30 days



60 days OVERDUE
for your alarm test



My Home's Health



✓ 23°C

warmest room

✓ 22°C

coldest room

✓ 24°C

✓ 21°C



✓ 53%

most humid

✓ 57%



✓ 520

highest

✓ 778



home

Event Reporting

The HomeLINK Portal will report on events that happen to the Alarms, Environmental Sensors and accessories within the system. This varies by RF technology:

Alarms and Accessories



 SmartLINK®  RadioLINK™

Fire Alarm	•	•
CO Alarm (High, Medium, Low)	•	•
Head Removed	•	•
Button Test	•	•
Power Up	•	•
Event Stopped	•	•
Sensor Fault	•	
Low Battery	•	•*
End of Life	•	
Mains Absent	•	

*600/208 Series Battery Alarms Only

Gateway



 SmartLINK®
Gateway

Gateway Mains Absent	•
Gateway Low Battery	•
Gateway Check-in	•

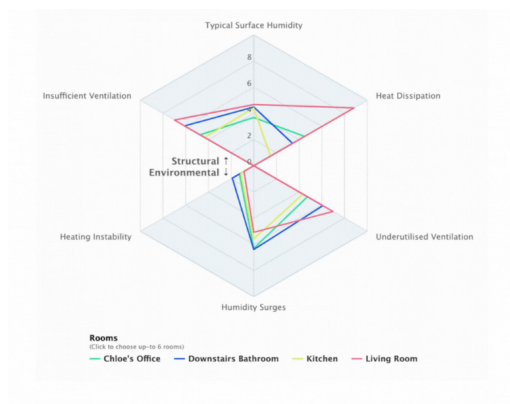
Environmental Sensors



	Ei1020	Ei1025
Condensation, Damp, Mould	•	•
Heat Loss	•	•
Excess Cold	•	•
Excess Heat	•	•
Indoor Air Quality		•
Draught Risk		•
Void Risk		•
Dust Mite Allergy Risk		•
Head Removed	•	•
Sensor Fault	•	•
Low Battery	•	•

Damp & Mould: Structural vs Environmental Insight

Combines several structural and environmental factors such as natural ventilation, heating patterns and humidity surges. All of this combined provides you with a picture of the most likely causes of damp or mould risk.



Ei1000G Gateway - Compatible Products

Mains Powered Alarms



SmartLINK®

Ei3030
Ei3028
Ei3024
Ei3018
Ei3016
Ei3014



RadioLINK+™

Ei211Oe
Ei166e
Ei164e
Ei161e
Ei262

Battery Powered Alarms and Sensors



RadioLINK+™

Ei630iRF
Ei650iRF
Ei660iRF
Ei208WRF



**Environmental
Sensors**



HomeLINK®

Ei1020
Ei1025

Accessories



Ei450
Ei414
Ei428



Ei408
Ei407
Ei413
Ei170RF
Ei171RF



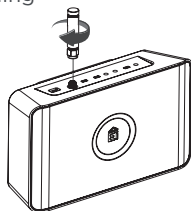
NOTE

All alarms must be fitted with
RF modules

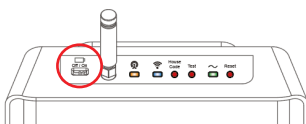
Installation

Follow these steps when first installing a Gateway in a property:

1 Screw on antenna

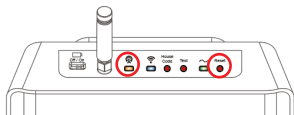


2 Switch on battery back-up



3 Press the **TEST** button - count amber flashes

Flashes	GSM Signal
4	Excellent
3	Good
2	Average
1	Poor



4 Check for area with:

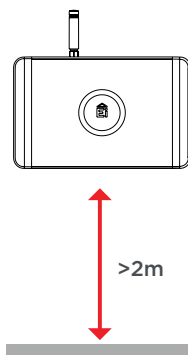
- Good signal
- Mains supply



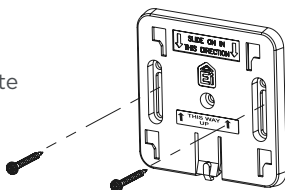
NOTE

Avoid large metal objects

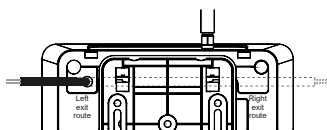
- 5** Recommended to site
>2m from floor level.
Wall mounted -
antenna vertical



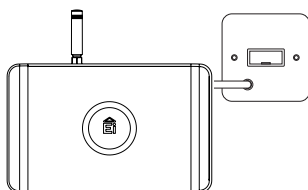
- 6** Fix mounting plate
to wall



- 7** Wire into an
unswitched
spur



- 8** Slide Gateway onto
the mounting plate



Setup

To setup a Gateway system, use the SmartLINK® App. This allows you to enter the property and alarm information – instructions within the App will guide you through the process.

1 Sign in with log-in details



If you are installing the system and someone else will be managing it, they will need to complete the registration form and then create an Installer Account for you.



2 Add installation Then follow the steps in the App



Setup – Alarm Scanning

Through the installation process, the App will prompt you to scan the QR codes on the Gateway, alarms, sensors and accessories within the system:

Gateway Example



Product Example



TIP

If there are no QR codes on an alarm or accessory, press 'Skip' in the App and manually enter the details

Testing An Event

Once a Gateway system has been installed and set-up, follow the steps below to test a button test event:

- 1 Press and hold the test button on an alarm



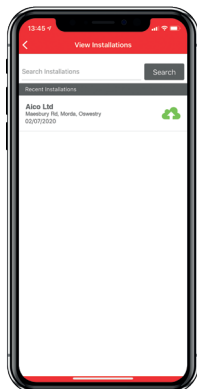
- 2 The amber GSM light on the Gateway should illuminate



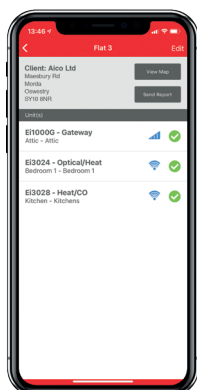
- 3 Select **View Installations** on the SmartLINK® App



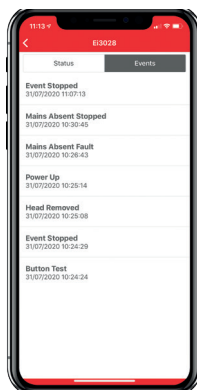
- 4 Select the system you are testing



- 5 Select the unit you have tested



- 6 Button test will be shown under the events



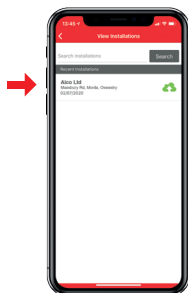
Adding A Unit

To add a unit to an existing Gateway system that is already installed and set-up, follow the steps below:

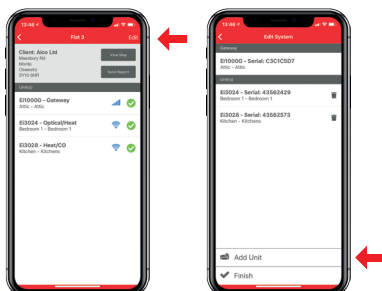
- 1 Select **View Installations** on the SmartLINK® App



- 2 Select the system you wish to add an alarm/sensor/ accessory into



- 3 Select **Edit**
Select **Add Unit**
Follow the instructions in the App



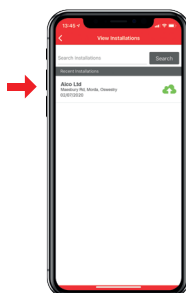
Removing A Unit

To remove a unit from an existing Gateway system that is already installed and set-up, follow the steps below:

- 1 Select **View Installations** on the SmartLINK® App

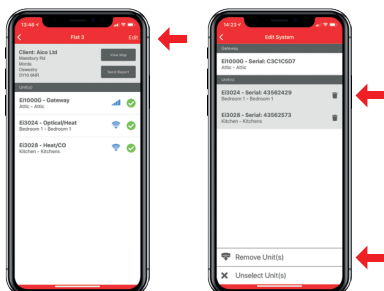


- 2 Select the system you want to remove the unit from



- 3 Select **Edit**
Select the unit you wish to remove, then **Remove Unit**
More than one unit can be selected

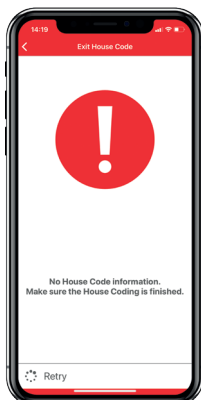
Follow the instructions in the app



Troubleshooting

House Code Error Message When Uploading

- Wait for amber GSM light on Gateway before uploading
- Press **Retry** to upload again



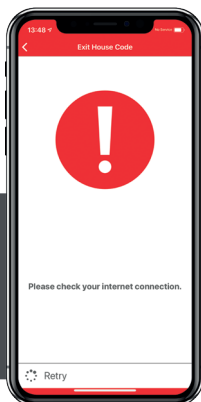
Check Internet Message When Uploading

- Phone has no signal
- Move to an area with phone signal and press **Retry** to upload



TIP

For further support please visit our YouTube channel for tips and how-to videos.



Accessories & Applications

What else do you need?

We have a wide range of accessories available to make your job easier and improve the protection the system provides.

Fire/CO Interface Module	98
Relay Module	99
Input Module	100
Sprinkler System	101
Door Holder	102
Strobe Light	103
Warden Call/Telecare	104
Fire Alarm Panel	105
Deaf & Hearing Impaired	106



TIP

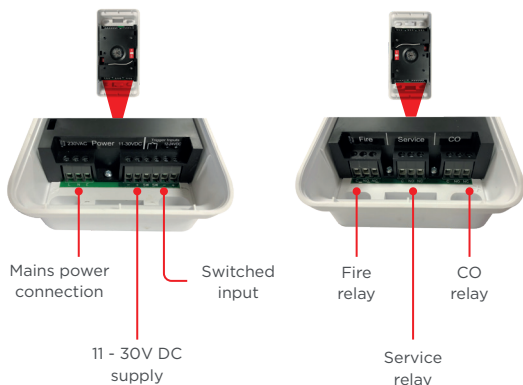
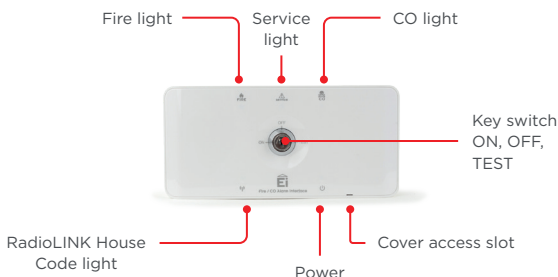
Accessories are available to interface to and from the alarm system to external devices

Fire/CO Interface Module



Model number: Ei414

- **Output** – used to switch other devices when alarms activate. Separate Fire, CO and Service outputs
- **Input** – used to trigger alarms when other devices activate
- Mains powered with rechargeable lithium back-up
- Key switch to control operation
- Volt-free relay terminals

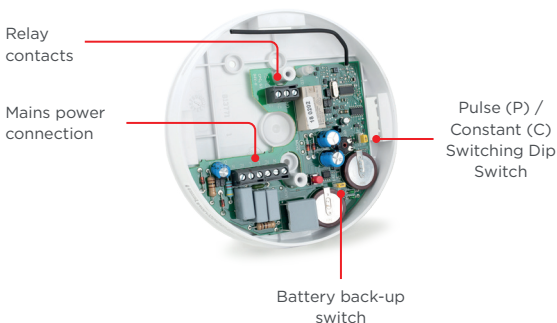
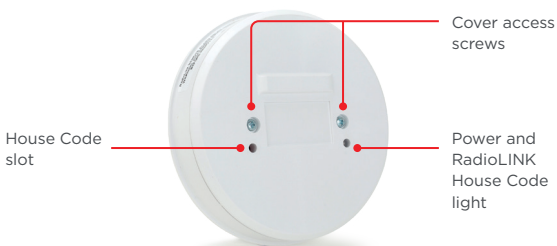


Relay Module



Model number: Ei428

- **Output** – used to switch other devices when alarms activate
- Mains powered with rechargeable lithium back-up
- Switch for constant or pulse relay switching
- Volt-free relay terminals

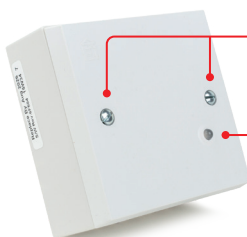


Switched Input Module



Model number: Ei408

- **Input** - used to trigger alarms when other devices activate
- Battery powered - 10 year lithium
- Accepts volt-free switched (closing) input

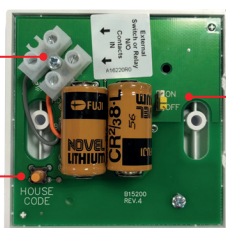


Cover access screws

Power and RadioLINK House Code light

Switched input connections

House Code button



Battery power switch

Application

Where a sprinkler system is required to trigger the alarm system in the property when the sprinklers are activated, providing an audible warning.

Product Required

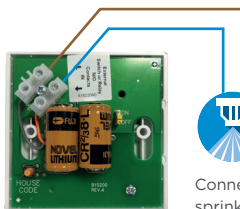
Switched Input Module



Model number: Ei408

Operation

- Connect to sprinkler flow/pressure switch contacts (volt-free)
- Sprinklers activate
- Flow switch contacts close
- Input Module sends out an RF signal to trigger the alarms



Connections from
sprinkler flow/
pressure switch
(volt-free)



TIP

BS 9251:2014 states all sprinkler systems should give an audible alarm when activated – this can be via the smoke/heat alarms

Application

Where a magnetic door holder (mains powered) is required to release a door when the alarm system triggers.

Product Required

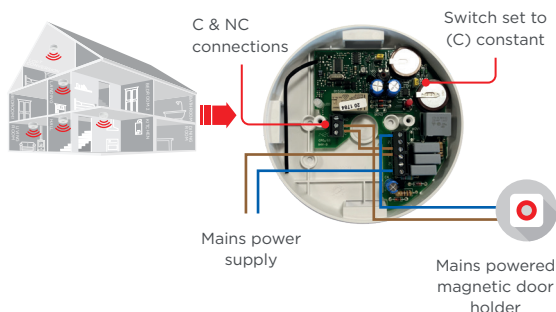
Relay Module



Model number: Ei428

Operation

- Connect the relay terminals to control the power to the magnetic door holder
- Alarms trigger and send an RF signal to the Relay Module
- Relay contacts switch, killing power to the door holder
- Door holder is de-energised, releasing door



Application

Where a strobe light (mains powered) is required to flash when the alarm system triggers, providing a visual warning.

Product Required

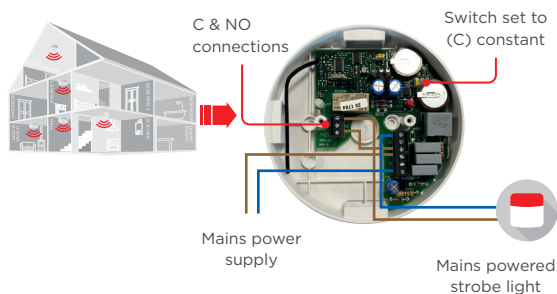
Relay Module



Model number: Ei428

Operation

- Connect the relay terminals to control the power to the strobe light
- Alarms trigger and send an RF signal to the Relay Module
- Relay contacts switch, supplying power to the strobe
- Strobe light flashes, giving visual warning



Application

Where the alarm system is required to interface with a warden call/telecare system, providing outputs for Fire, CO and/or head removal events.

Product Required

Fire/CO Interface Module



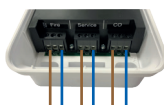
Model number: Ei414

Operation

- Connect the relay terminals to the warden call/telecare system (as per manufacturer's requirements)
- Alarms trigger or an alarm is removed from its base – sends an RF signal to the Interface Module
- Relay contacts switch, interfacing to the warden call/telecare device
- Warden call/telecare device signals out to warden/ARC, as per its setup and configuration



Mains power supply



Connections to
Warden Call/Telecare
device as per device
inputs

Application

Where the alarm system is required to interface with a commercial fire alarm panel, providing outputs for Fire, CO and/or head removal events.

Product Required

Fire/CO Interface Module



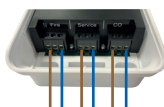
Model number: Ei414

Operation

- Connect the relay terminals to the fire alarm panel (as per manufacturer's requirements – typically via an I/O module)
- Alarms trigger or an alarm is removed from its base – sends an RF signal to the Interface Module
- Relay contacts switch, interfacing to the fire alarm panel
- Fire alarm panel responds as per its setup and configuration



Mains power supply



Connections to Fire Alarm Panel as per system inputs – typically via an I/O Module

Application

To provide warning to deaf or hearing impaired occupants if the alarm system triggers.

Product Required

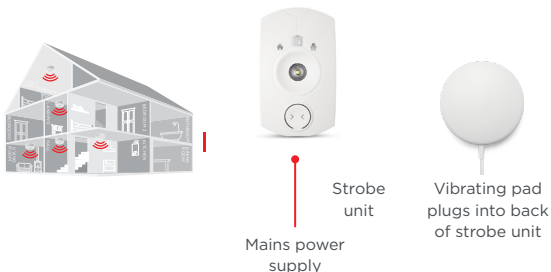
Alarm Module for the Deaf & Hard of Hearing
(mains powered flashing strobe and vibrating pad)



Model number: Ei170RF

Operation

- Connect the strobe to a mains supply, plug in the vibrating pad and place under a pillow
- Alarms trigger and send an RF signal to the Alarm Kit for the Deaf
- Strobe light flashes, giving visual warning, and vibrating pad vibrates to wake sleeping occupants



Wiring Diagrams

The technical details.

Looking for a wiring diagram?
This is the section you need.

Smoke & CO Alarms - Hard-wired	108
Smoke & CO Alarms - RF	109
Smoke & CO Alarms - Hybrid	110
Alarm Controllers	111
Fire/CO Interface Module	113
Manual Call Points	114
Ei1000G Gateway	115
Relay Modules	116
Input Modules	118
Deaf & Hearing Impaired	120



TIP

Use RF interconnect alarms and accessories to simplify wiring and minimise disruption

3000 Series



140e Series

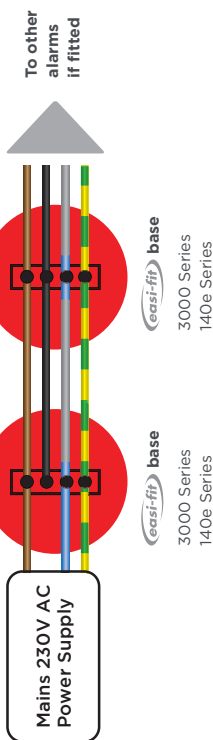
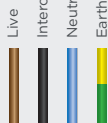


Cabling:

To first alarm: 2-core and earth PVC – 6242Y

Between alarms: 3-core and earth PVC – 6243Y

Wiring Key:



3000 Series



Ei3000MRF



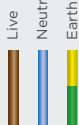
140e Series



Ei168RC



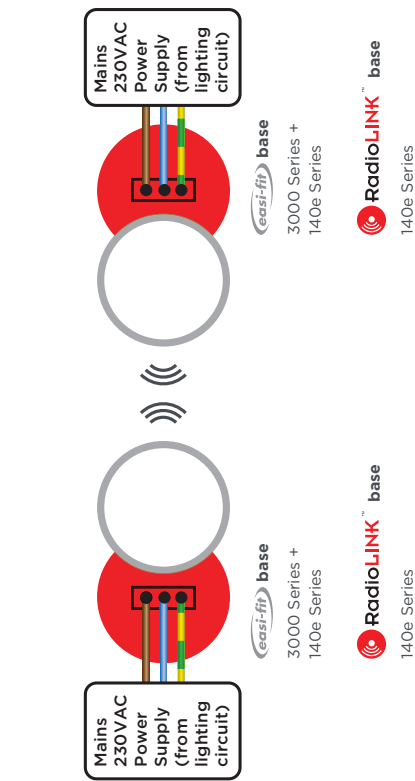
Wiring Key:



Cabling:

To each alarm:

2-core and earth PVC – 6242Y






3000 Series



Ei3000MRF



Wiring Key:

	Live
	Interconnect
	Neutral
	Earth

140e Series



Ei168RC



Cabling:

To first alarm (hard-wired circuit) and new alarm:

2-core and earth PVC – 6242Y

Between alarms (hard-wired circuit):

3-core and earth PVC – 6243Y



3000 Series
140e Series



3000 Series +
Ei3000MRF



3000 Series +
Ei3000MRF



140e Series



140e Series

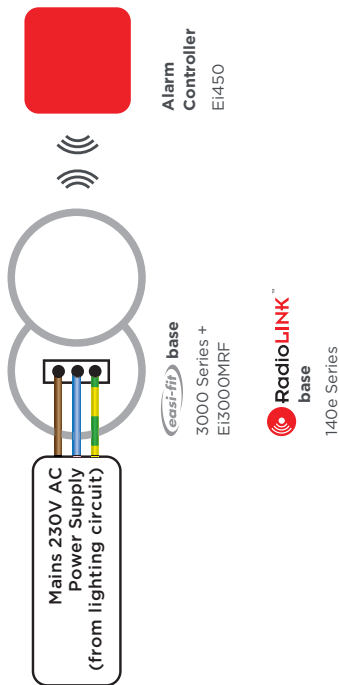
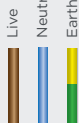
Ei450  RadioLINK⁺



Cabling:

To each alarm:
2-core and earth PVC – 6242Y

Wiring Key:



Ei1529RC






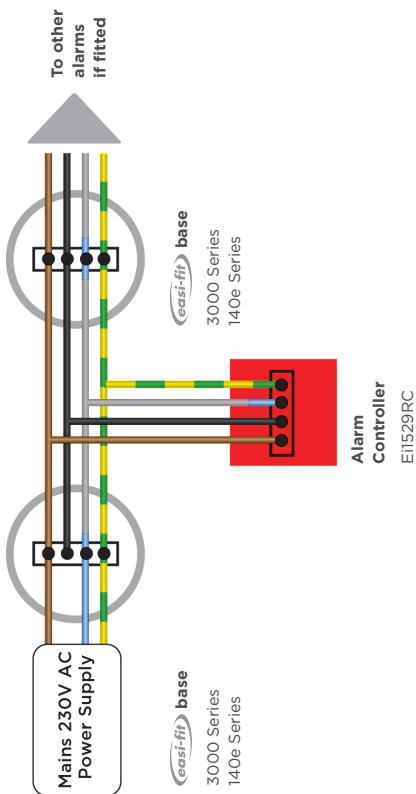
Cabling:

To first alarm: 2-core and earth
PVC – 6242Y

Between alarms and controller:
3-core and earth PVC – 6243Y

Wiring Key:

	Live
	Interconnect
	Neutral
	Earth

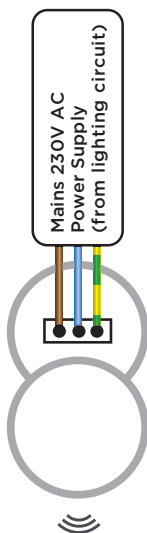
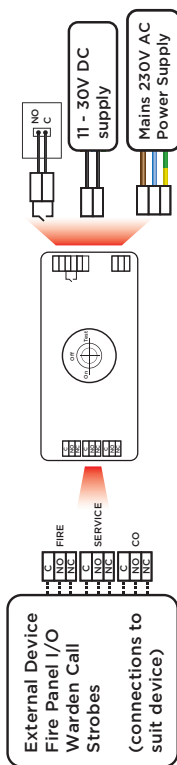


Ei414  RadioLINK⁺



Cabling:

Power supply:
2-core and earth PVC – 6242Y



easi-fit base

3000 Series +
EI3000MRF

RadioLINK⁺
base

140e series

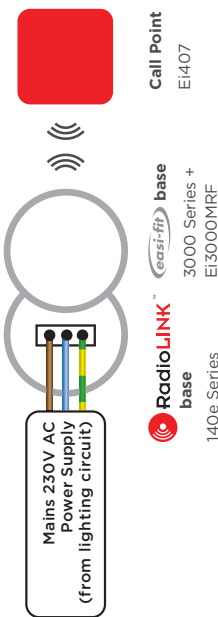
Wiring Key:

Live

Neutral

Earth

Ei407



MCP401RC

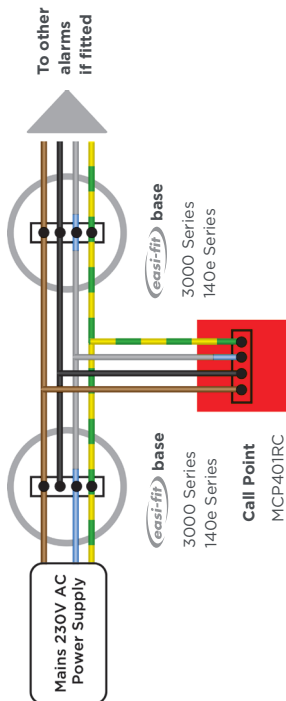


Cabling:

To first/only alarm: 2-core and earth PVC – 6242Y
Between alarms and call point: (MCP401RC) 3-core and earth PVC – 6243Y

Wiring Key:

	Live
	Interconnect
	Neutral
	Earth








3000 Series Ei1000G SmartLINK®



Ei3000MRF



Wiring Key:

	Live
	Interconnect
	Neutral
	Earth
	Pre-wired
	2-core cable

Cabling:

To each alarm:
2-core and earth PVC -
6242Y

To Gateway:
2-core (pre-wired)



Gateway
Ei1000G



3000 Series +
Ei3000MRF




Ei428  RadioLINK™



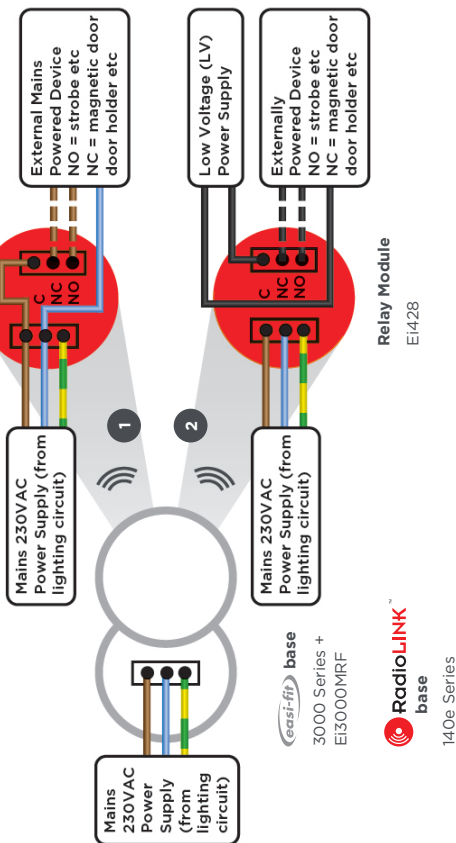
Cabling:

To each unit: 2-core and earth PVC – 6242Y

Wiring Key:

-  Live
-  Neutral
-  Earth

- 1** Option 1 - Mains Powered External Device
- 2** Option 2 - Low Voltage External Device



Ei128RBU



Cabling:

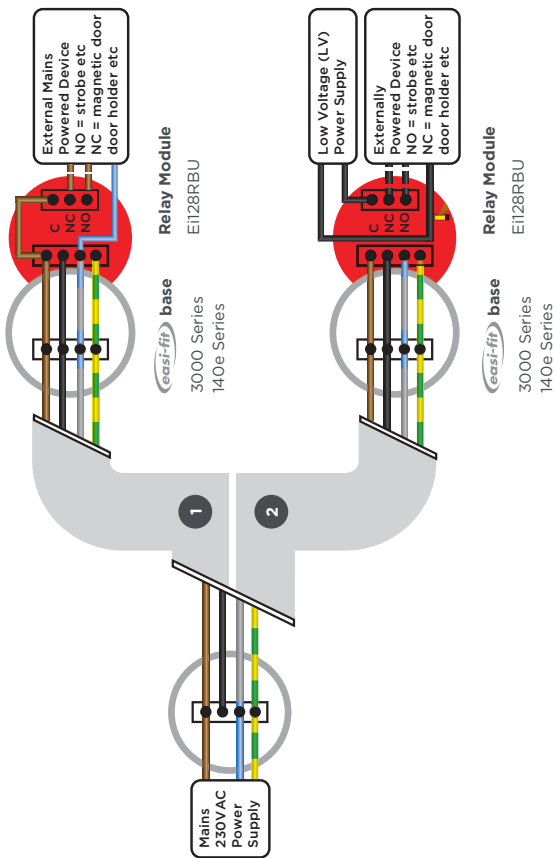
To first alarm: 2-core and earth
PVC - 6242Y

Between alarms and relay module:
3-core and earth PVC - 6243Y

Wiring Key:

- Live
- Interconnect
- Neutral
- Earth

- 1 Option 1 - Mains Powered External Device
- 2 Option 2 - Low Voltage External Device






Ei408  RadioLINK[®]

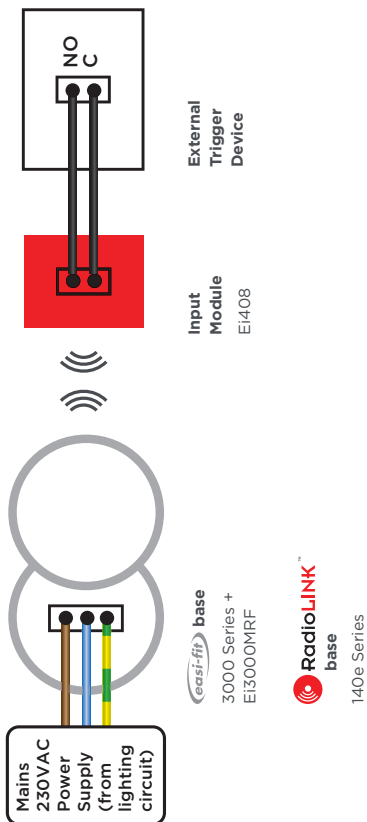


Cabling:

To each alarm: 2-core and
earth PVC - 6242Y

Wiring Key:

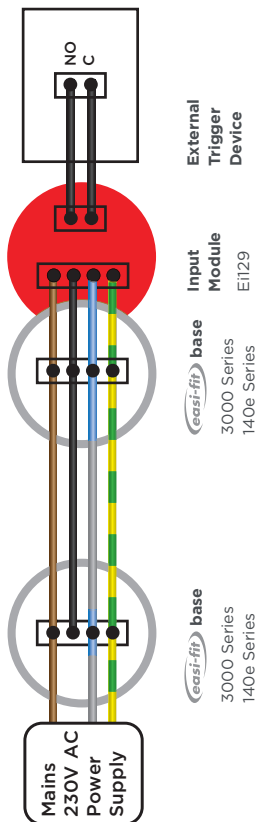
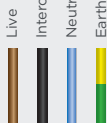
-  Live
-  Neutral
-  Earth



Ei129**Cabling:**

To first alarm: 2-core and earth
PVC - 6242Y

Between alarms and input module:
3-core and earth PVC - 6243Y

Wiring Key:

Ei170RF  **RadioLINK**

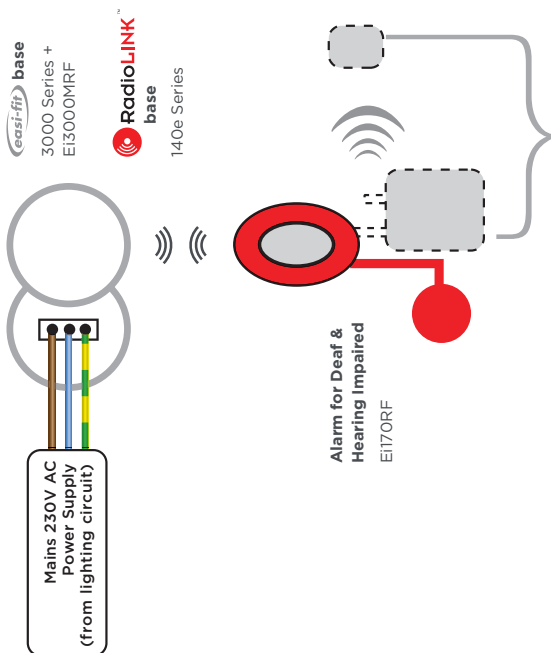


Cabling:

To each alarm: 2-core and earth PVC – 6242Y
To alarm for deaf & hearing impaired:
Supplied with pre-wired 3-pin plug – can be removed to wire into fused spur

Wiring Key:

Live
Neutral
Earth



Why choose Aico?

How we put Education, Quality, Service and Innovation at the heart of everything we do.

Apps	122
Website	123
Expert Installer & Mobile Units	124
Technical Team	125
About Aico	126




TIP



Visit the Aico website for lots more support information - go to www.aico.co.uk

Apps



Award-winning  AudioLINK+ technology makes it easy to get real-time data directly from Smoke and Carbon Monoxide alarms.

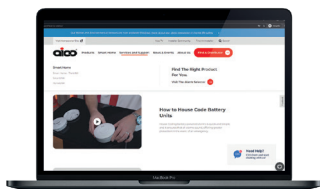
- Alarm activations
- Record of testing
- Carbon Monoxide levels from CO alarms
- Data can be emailed

All you need is an  AudioLINK+ enabled alarm, a smartphone or tablet and the free  AudioLINK+ App.



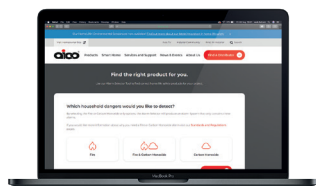
Aico Website

Visit the Aico website for lots of useful support information - www.aico.co.uk



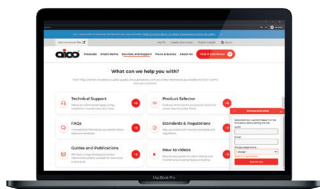
How To Videos

On everything from House Coding RF products to extracting data from an alarm using AudioLINK+



Alarm Selector

Simple step-by-step tool to produce a pre-written specification document



Live Chat

Chat with our knowledgeable Technical Team for support on technical questions about a product or installation



Free, Award-Winning Expert Installer Training

Effective protection relies on having the best alarms correctly installed. Our free Expert Installer training is FIA CPD accredited and is designed to ensure that you have all the information needed to install domestic home life safety systems, including Fire and Carbon Monoxide alarms and Environmental Sensors.

What is covered?

- ✓ British Standard BS 5839-6:2019+A1:2020
- ✓ Alarm Sensor Types
- ✓ System Installation
- ✓ Alarm Interconnection
- ✓ Plus many more add-on modules

Sign up at

www.aico.co.uk/expert-installer



Mobile Training & Demonstration Units

**Bringing our products,
technologies and training
to you.**

Designed to enable a complete overview of our products, technologies and knowledge, they travel the length and breadth of the country to give more of our customers a chance to get closer to Aico, what we offer and free training covering Standards and Regulations.

Why not join our Installer Community?



All Expert Installers will be invited to join the Installer Community. As part of our connected community you can network, share knowledge and discuss issues through our forum, be the first to know about new technology, get access to exclusive events and earn points to compete for monthly prizes!



CONNECT



LEARN



REWARD

Members of the Community are eligible for Aico's City & Guilds Assured Training, providing in-depth knowledge on Domestic Fire & Carbon Monoxide alarm systems.



We have all the Technical Support you need



technical@aico.co.uk



01691 664100



Live chat - www.aico.co.uk

Select Technical Support



Live video support

Email technical@aico.co.uk to arrange a video call



YouTube

View our library of how-to videos on our YouTube Channel youtube.com/aicoalarms



The European Market Leader in Home Life Safety

Aico, an Ei Company, is the European Market Leader in Home Life Safety, pioneering new technologies and offering high quality alarms, developed and manufactured in Ireland. All Aico alarms meet UK standards and offer a variety of sensor types to guarantee protection for every home, the cornerstone of which is delivering education, quality, service and innovation.

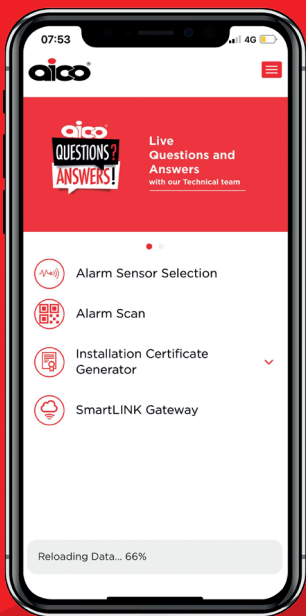
Aico has expanded its Connected Home offering through HomeLINK. HomeLINK is Aico's a multi-award winning high-tech software that leverages cutting edge home integration and analytic technologies to address the needs of landlords and their residents.



**Education, Quality, Service
and Innovation.**

The Handbook is now available as an App!

Download it here:



© Aico Illustrations, photographs, part numbers, layout and style are considered property.

Any reproduction, in whole or in part, is strictly prohibited without written permission. Our policy is one of continuous improvement; we reserve the right to amend designs and specifications without prior notice. Every care has been taken to ensure that the contents of this document are correct at the time of printing and we shall be under no liability whatsoever for any errors or omissions.

Apple, the Apple logo and iPhone are trademarks of Apple Inc., registered in the U.S. and other countries and regions. App Store is a service mark of Apple Inc.

Google Play and the Google Play logo are trademarks of Google LLC.

JULY 2025 | 8TH EDITION



T 01691 664100

E enquiries@aico.co.uk

www.aico.co.uk

an  Company

Aico is a wholly owned subsidiary of Ei Electronics -
Europe's Leader in Residential Fire + Gas Detection